Policy, Research, and External Affairs

WORKING PAPERS

Agricultural Policy

Agriculture and Rural Development
Department
and Latin America and the Caribbean
Regional Office, Country Department II
The World Bank
February 1990
WPS 285

Enhancing the Contribution of Land Reform to Mexican Agricultural Development

John Richard Heath

Radical change in the land reform program is not in order in Mexico, but certain institutional changes would improve agricultural growth on farmlands governed by land reform.

Policy, Research, and External Affairs

WORKING PAPERS

Agricultural Policy

This paper — a joint product of the Agricultural Policy Division, Agriculture and Rural Development Department, and the Agriculture Operations Division, Latin America and the Caribbean Regional Office, Country Department II — assesses the institutional aspects of agricultural development. Reforms in land and credit policies, which are the focus of this effort, can have a major impact on both equity and agricultural growth. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington DC 20433. Please contact Cicely Spooner, room N8-039, extension 30464 (85 pages with tables).

The *ejido* is a rural community on which the Mexican government has conferred land and water resources. *Ejido* members (*ejidatarios*) can use the land but are prevented by agrarian reform law from selling it. The *ejido* seems to be a more or less fixed element in the Mexican rural economy.

Heath found no conclusive evidence that individual *ejidos* are significantly less productive than private farms, and hence it seems unlikely that privatization of *ejidos* would greatly improve agricultural growth. At the margin, however, *ejidatarios* face more constraints on productivity growth than private farmers.

Heath recommends the following piecemeal improvements to the existing structure:

- Accelerate the drive to give *ejidatarios* titles to their parcels of land.
- Grant *ejidatarios* titles irrespective of the size of their parcels.
- Simplify and clarify restrictions for private farmers on holding size and land use.
- End restrictions on renting or sharecropping by *ejidatarios*.
- Allow *ejidatarios* to sell their land parcels to other members of their *ejido* (not outsiders).
- Improve management of communal lands.
- Extend credit directly to individual *ejidatarios*, on the basis of their creditworthiness.
- Cease having the whole *ejido* bear the burden of loan default by one or more *ejidatarios*.
- Provide credit to *ejidatarios* wholly in cash and allow them to decide what inputs to purchase and what crops to plant.

Table Of Contents

The author would like to thank GIOIA PALMIERI for her help as a research assistant.

I. EXECUTIVE SUMMARY

Background

In Mexico, the commitment to land reform is enshrined in the 1917 Constitution and the reform remains, to this day, an important political symbol. By 1988, no less than 54 percent of national territory had been affected by the land reform. The land reform peaked in intensity during the Cárdenas administration (1935-40) and, since the mid-1970s, there has been a significant drop in the amount of land redistributed. Since 1977 governments have often stated that there is no more land available to redistribute; emphasis has shifted from redistribution to ensuring that landholders (both within and outside the ejido sector) have adequate legal title to their land. Although expansion of the land reform sector is not part of the present government's policy agenda, it derives a significant proportion of its electoral support from the ejido population. Some have argued that the ejido system has always been of greater importance as a political control mechanism than as a tool of economic policy. In any event, the ejido's political significance should not be underestimated.

Approach

Consideration focusses on individual ejidos since these constitute the majority; collective ejidos are few in number and, since the mid-1970s, no government has promoted collectivization. An attempt is made to compare the performance of individual farms inside the ejido with comparably-sized private farms. In Mexico, large farm enterprises have traditionally been favoured by government programmes of subsidized input delivery. Therefore, in reviewing the historical evidence concerning the relative efficiency of ejidos and private farms it is important to control for the scale of enterprise.

Wherever possible a comparison is made between ejido parcels of up to 5 hectares and private farms in the same size range. According to the latest agricultural census data (1981), roughly 60 percent of the farms in both tenure categories are of this size. Of the land in holdings up to five hectares, 75 percent is controlled by ejidos and 25 percent by private farms; the average size of farms in the private sector is 74 hectares, compared to 7 hectares in the ejido sector.

Data Limitations

Comparisons of the performance of both tenure categories are hampered by the incompleteness of the 1981 census data; in many cases (e.g. when comparing crop yields) the most recent data derive from the 1970 census. Therefore, it is impossible to draw hard and fast conclusions about the relative productivity of private farms and ejidos in the recent period. However, by observing differences in the institutional arrangements confronting individual ejidos and private farms it is possible to infer whether such differences are likely to lead to variations in productivity between the two tenure categories.

Problems with the Land Reform Law

Vagueness and contradictions in the law create a climate of uncertainty that may discourage on-farm investment by both ejidatarios and private farmers. First, while there is some logic to establishing limits to the size of holdings in the private farm sector, the rationale for varying these ceilings according to the type of crop cultivated is dubious. Also, in the case of cattle raising, the law is inconsistent about the maximum holding size permitted and there is a legal loophole (amparo) that has resulted in the selective enforcement of these ceilings, undermining the credibility of the law. Moreover, it is unclear what proportion of their land cattle-raisers may legitimately devote to crop cultivation.

The legal stipulation about the size of parcels in individual ejidos (20 hectares of rainfed land) is not enforceable owing to demographic pressure; in some cases, ejidatarios have failed to receive title to their holding because the parcels is smaller than the officially-prescribed minimum. Although access to state credit appears not to be contingent on possession of title to the land, the lack of a titulo parcelario does reduce the ejidatario's security of tenure: it may increase the likelihood of his being arbitrarily evicted if he falls out with ejido authorities.

Probably the most important area of uncertainty concerns the legitimacy of renting-out ejido parcels (or engaging in sharecropping). While Article 76 of the 1971 Ley Federal de Reforma Agraria may be interpreted to permit renting in certain circumstances, there is a noticeable lack of agreement about the legality of this practice. The 1981 Ley de Fomento Agropecuario does not eliminate the confusion: while facilitating "joint ventures" between ejidatarios and private farmers it is not clear from this law whether forms of association based on renting are illegal.

Access to Land and Land Use

The fragmentation of holdings is only slightly less advanced in the ejido sector than among small private farms indicating that, despite formal prohibitions on the division of ejido parcels on inheritance, the land reform has largely failed to check the spread of minifundia: on holdings up to five hectares, the average size of farms was 2.4 has. in the ejido sector and 1.7 has. in the private sector (1981). Also, in 1981, in the case of these small farms, there was no significant difference between tenure categories in the crop mix, in the proportion of cropland left in fallow and in the number of cattle per hectare.

However, there were two significant differences between the tenure categories. First, irrespective of holding-size, the ejidos reported a higher intensity of land use in 1981 (proportionately more land in agricultural production). This may be partly attributable to the second factor: ejidos had better access to irrigation than small private farms (an apparent reversal of the pre-1970 trend).

Although the exact proportion is hard to determine, a large part of the land in individual ejidos is reserved for communal use: primarily as forest or rough grazing. Since no individual ejidatario feels responsible for the communal reserve

this may encourage overgrazing and poor forest management; if widespread, these practices will reduce the average productivity of the ejido sector in relation to private farms.

Employment

Owing partly to holding fragmentation, small farmers and ejidatarios are not able to depend entirely on the output of their land to cover family subsistence requirements: farmers in both sectors are heavilly involved in off-farm work, seeking employment in the large towns and also in the United States. Recourse to off-farm work has been further encouraged by urban real wage trends which (until recently at least) have been more favourable than trends in the farm-gate prices of staple crops. Rural outmigration has generally caused (and been a consequence of) trends in agriculture involving less intensive use of labour per hectare. Since the 1970s, these trends have centred on more widespread use of tractors, an increase in the relative importance of livestock income and a shift toward less labour-intensive crops (notably sorghum).

For ejidatarios, the increased dependence on off-farm income sources appears to have led to greater recourse to leasing-out of ejido parcels and (equally important) to sharecropping. As well as placing ejido land in the hands of private farmers, these practices also create employment within the ejido (since land-deficit families that do not migrate are able to work the land of those who have migrated): although, in many cases, renting and sharecropping increase wealth concentration, they may in some cases have positive distributional effects; in any event, they ensure efficient exploitation of ejido land by placing it in the hands of those with the means and the vocation to work it.

Credit

Ejidatarios have less access than small private farmers to commercial loans because the law prevents them from mortgaging their land; there is therefore a long tradition of dependence on state credit banks that have waived the collateral requirement and, traditionally, exercised weak sanctions against loan default. There is a strong ethos of paternalism and low credit discipline in relation to development bank lending to agriculture. This is a significant point, first, because the ethos is pervasive, affecting development-bank (Banrural) lending to private farmers as well as ejidatarios; second, because it is associated with the tendency to use credit for political rather than economic purposes. The second of these factors contributes to a tendency to spread credit resources too thinly: partly in order to enhance rural tranquility and partly from a misguided attempt to use working-capital loans as a means of contributing to broad-based social welfare.

Paternalism is discernible in the long tradition of restricting the range of crops for which state credit is available (in effect, telling farmers what they may grow); also, in the continuing provision of credit in kind, with the bank assuming responsibility for selection and timely delivery of inputs. These practices respectively discourage crop diversification (potentially restricting farm incomes) and adversely affect crop yields by giving the farmer no freedom to tailor input application to his precise requirements.

Although, in these respects, ejidatarios and private farmers lending from Banrural face the same constraint, there are two obstacles to credit access that apply specifically to ejidatarios. First, individuals within the ejido cannot negotiate directly with Banrural for their loans: the bank is legally required to operate with the ejido as a whole through the ejido leadership; individual credit applications must ultimately be endorsed by that leadership. Therefore, ejidatarios may potentially be excluded from credit if they have political differences with the leadership.

Second, in the event of default by some of the ejidatarios who have received Banrural credit, the whole ejido may be cut off from credit in the subsequent crop cycles: ejidatarios who repay their debts lose out to the insolvency of their fellows. Since ejidos tend to be large in size and diffuse in membership characteristics, it is rarely the case that there is a cohesive peer pressure group capable of ensuring that those tempted to default honour their debts. The probability that the ejido will be cut off from credit in the following cycle (coupled with the bank's tolerance of individual defaults) serves to undermine credit discipline.

Marketing

A programme exists that subsidizes the transport costs of ejidatarios and small private farmers who sell grain to the rural warehouses operated by the state. While this programme may marginally extend the reach of the government's guarantee price policy, its overall impact is restricted by the nature of the warehouse network: warehouses are concentrated in better-off regions (where the bulk of the grain surplus is produced) and there are few of them in poor, remoter regions (where the need for income support is greatest). Therefore, marketing subsidies (like credit subsidies) have "leaked" to better-off farmers, wasting resources.

Comparing the performance of ejidos and private farms

From the preceding discussion, four hypothese may derived, all tending to suggest that ejidos should be less productive than private farms:

1. Many ejidatarios lack usufruct title to their land, reducing their security of tenure and inhibiting on-farm investment in the ejido sector;

2. Unclear laws concerning renting and sharecropping inhibit the transfer of land use to the most efficient producers;

3. Mismanagement of ejido communal land depresses the average productivity of this sector in relation to private farms;

4. Problematic access of ejidatarios to credit adversely affects crop yields.

On the other hand, there is a countervailing hypothesis:

5. Contradictory laws concerning holding-size limits and land-use restrictions may inhibit on-farm investment by private farmers.

Testing of these hypotheses is difficult owing to data limitations. There are no recent studies of the relative productivity of ejidos and private farms: the available sources are based either on agricultural census data up to 1970 or pre-1970 case studies. In the period before 1970, ejidos appear to have had poorer land on average than small private farms and to have had lesser access to credit and public investment; also, there is evidence of scale-bias in the government's delivery of subsidized capital inputs. These factors should be borne in mind in interpreting pre-1970 studies.

Sources based on the census record reach varying conclusions about the relative productivity of the two tenure sectors: summarizing, it would appear that ejidos had lower land yields before 1970 but higher output per unit of purchased capital inputs; ejidos also show lower labour productivity than small private farms, all the more so if a cost is imputed to unpaid family labour. However, given the clandestine renting out of ejido land to private farmers, the census data probably fail to reflect the real distribution of inputs and outputs between the two tenure sectors; this places in doubt any conclusions about relative productivity that are derived from the census data.

Of the case studies, only one (dating to 1967) controls effectively for both land tenure and enterprise scale: the study concludes that, in irrigated regions, ejidos outperform private farms in each size stratum (the gap between sectors being largest in the case of capital productivity, confirming the results of census-based studies).

The incompleteness of the 1981 census data does not permit calculation of relative productivity in the recent period. However, land use data from this census suggest that ejidos are likely to be at least as productive as small private farms: ejido parcels up to five hectares are better irrigated than comparably-sized private farms and show a higher proportion of land in agricultural use; also, the ratio of fallow land to cropland is the same for both tenure categories in this size class. Thus, controlling for enterprise size, there is no conclusive evidence that individual ejidos are less productive than private farms.

Policy recommendations

There are major political constraints to tampering with the Mexican land reform; moreover, the evidence does not suggest that radical change in land tenure would greatly enhance agricultural growth. However, while the institutional differences between individual ejidos and small private farms appear not to generate major differences in indicators related to productivity, at the margin, ejidatarios face more constraints on productivity growth than private farmers. Rather than seeking to undo the land reform, policy initiatives should focus on making piecemeal improvements to the existing structure. Specifically,

1. Granting of titles to ejidatarios should not be contingent on parcel size.

2. The existing drive to provide ejidatarios with usufruct titles should be accelerated.

3. Holding-size and land-use restrictions for private farmers should be simplified and clarified.

4. There should be no restriction on renting or sharecropping by ejidatarios.

5. Ejidatarios should be able to sell their parcels to other members of their ejido (not to outsiders).

6. Management of communal lands should be improved.

7. Credit should be extended directly to individual ejidatarios, on the basis of their creditworthiness.

8. The burden of loan default should not be borne by the whole ejido.

9. Credit should be provided wholly in cash and ejidatarios should be free to purchase the inputs and plant the crops they wish.

II. INTRODUCTION

1. The purpose of this paper is to consider whether the institutional factors associated with the Mexican land reform (ejido) sector constrain agricultural growth. Parting from the assumption that the ejido may be considered a more or less fixed element of Mexico's cultural and political scene, the paper will focus on the piecemeal changes that could help to enhance growth and productivity within the existing structure.

2. The ejido is a rural community, possessing land and water resources conferred upon it by the Mexican government; ejido members (ejidatarios) have usufruct rights over the land but are prevented by the agrarian reform law from selling it. The term "ejido" originally referred to communal lands outside (at the "exit") of the medieval Spanish village; as an institution, the ejido also has antecedents in pre-Columbian land-holding patterns (Eckstein,1966:9-13).

3. There is little reliable, recent information on the extent of the ejido system (see Appendix A). In 1970 (the last date for which systematic farm census data is available), about 60 percent of farm families were ejidatarios (Yates,1981a:145). At that time there were over 23,000 ejidos in Mexico, possessing 56 percent of arable land and accounting for almost 40 percent of the combined value of crop and livestock output (Yates,1981a:160).

4. In considering the constraints posed by the ejido sector it is necessary to ask whether the institutional differences between ejido enterprises and similarly-sized private farms give rise to significant variations in the economic performance of enterprises in each tenure category. To enhance the legitimacy of the comparison, references to the ejido sector will focus on individual ejidos:

those communities in which ejido households are each allocated their own parcel of land, this land being worked on an individual rather than a collective basis. An ejido of this type is effectively a nucleus of separate household-based enterprises; in terms of production and marketing procedures, it has much in common with villages whose inhabitants are small private landowners.

5. In 1981, 58 percent of the parcels in individual ejidos occupied an area of five hectares or less; the average size of each parcel was seven hectares. In the private farm sector, 56 percent of enterprises covered no more than five hectares while the average farm size was 74 hectares (Table 1). Thus, although there is roughly the same proportion of small enterprises in both sectors, large private farms are much bigger on average (in terms of area occupied) than the largest parcels in the ejido sector: most of the giant cattle ranches are private farms, not ejidos.

6. There are a small number of collective ejidos where the land is worked in large, centrally-managed units with each ejido household being assigned a work quota. The Echeverría government (1970-76) created about 5,000 collective ejidos but, partly because these were "legislated into existence from above", they met with considerable peasant resistance (Barkin,1977). There is no reliable data on the number of collective ejidos currently in operation (or the area they occupy); in 1970, they accounted for less than 5 percent of the arable land in the ejido sector (Eckstein et al,1978:36).

7. The collective ejidos are concentrated in the Laguna region (which overlaps parts of the states of Coahuila and Durango); the Yaqui Valley (Sonora); Los Mochis (Sinaloa); and the state of Yucatán (Johnston,1983:235n). It is safe to conclude that, at the moment, the collective ejidos do not occupy a prominent place on the Mexican rural scene: since the Echeverría administration, the Mexican

government has shown no commitment to the principle of collectivization (Montañez,1989). Therefore, for the purposes of this report, it is not important that they be excluded from the analysis.

8. The land reform sector (the so-called sector social) consists not only of ejidos but also indigenous communities: the latter are mainly settlements of Pre-Columbian origin and are less numerous than the ejidos. This report will not comment on the specific constraints facing the indigenous communities.

III. Historical Background

9. Throughout the colonial and postcolonial period of Mexican history, there was a high level of concentration in the pattern of landholding; following the liberal reforms of the mid-nineteenth century (which abolished the inalienability of church property), the process of concentration accelerated, receiving much stimulus from the expansion of commercial agriculture that occurred under the rule of Porfirio Díaz (1876-1910). During the Porfiriato peasant villages lost much of their land to the expanding estate sector and by 1910 the degree of land concentration in Mexico exceeded that of any other Latin American country (Eckstein et al,1978:17).

10. Land reform was called for by one of the principal factions contending for power in the Mexican Revolution (1910-20): the peasant insurgents from the state of Morelos, led by Zapata (Womack,1969). Ultimately, however, it was not the zapatistas but liberal-bourgeois elements that seized control of the Revolution. While this faction fully appreciated the importance of ensuring peasant support they remained largely unconvinced that agrarian reform might serve as a suitable foundation for agricultural growth. During the period of regime formation (1910-40), from all sides of the political spectrum, "the peasantry constituted a vital political force"; "All major groups contending for national power therefore promised

to return communal lands to their traditional owners, less out of conviction, in some cases, than out of political necessity" (Hewitt de Alcántara,1980:23).

11. The founders of the modern state apparatus (notably Calles) hailed from northern Mexico and were strongly influenced by the U.S. pattern of agricultural development: they felt that large commercial farms, private enterprise and increasing capital inputs were necessary for agricultural growth, remaining unconvinced that cooperative organizations of small peasant producers could either generate the marketed surplus of staple foods needed for urban industrialization or effectively sponsor agricultural export growth. In the 1920s, President Calles envisaged that the ejido parcel would never constitute more than a partial subsistence base for a rural population primarily dependent for its livelihood on wage earnings: the parcel was intended to provide an income supplement rather than constitute a viable farm exterprise (Hansen,1971:107-108; Johnston,1983:234; Hewitt de Alcántara,1980).

12. Although the commitment to land reform was enshrined in the 1917 Constitution, significant redistribution of land was delayed until the mid-1930s. During the Cárdenas administration (1935-40) the land reform sector more than doubled in size (Table 1). However, it has been argued that the government's objectives were more political than economic: land reform was necessary to break the stranglehold of regional oligarchies and to facilitate the centralization of power, while simultaneously cementing the loyalties of the peasantry to the PRI regime (Hansen,1971; Córdova,1974; Reilo,1987). Therefore, the reform was carried out hurriedly and unsystematically with little attention paid to the quality of the land endowment or the viability of the size of holdings created (Brannon & Baklanoff,1984:1133).

13. However, despite the relative intensity of land reform in the mid-1930s, a significant number of the large estates were left intact. Guarantees against expropriation were extended to many private cattle producers. Also, it may be argued that cardenista policy went against the grain. Both before and after the Cárdenas administration skepticism toward land reform dominated thinking in the upper echelons of government: the spirit of Calles ultimately proved more enduring than the spirit of Cárdenas (Hansen,1971).

14. After 1940, there was a progressive reconsolidation of private property, much of it by persons well-connected with the PRI regime (newcomers to the countryside who were scathingly referred to in Mexico as agricultores nylon [INEGI,1986:268-269]). This was associated with the formation of neolatifundia, private properties exceeding the holding-size limit prescribed by land reform: these properties would be nominally parcelled out among several different owners (usually relatives of business partners), but would in practice be operated as a single unit (Stavenhagen et al,1968; Warman,1977).

15. The commitment to land reform was vitiated, not only by the survival of large private estates, but more significantly by the government's orientation of public investment and agricultural research toward the needs of large private farms rather than ejidos. Johnston and Kilby (1975) have argued that, in contrast to Taiwan and Japan (where the land reform was more thorough going), in Mexico, the coexistence of large and small farm units was accompanied by a government policy that gave preference to the former: the incompleteness of the agrarian reform was compounded by a "scale bias" in input delivery. The private farms benefitted particularly from the huge, reservoir-based irrigation projects that were set up in the north and north-west regions, regions that became the prime

contributors to the rapid agricultural growth of the 1940s and 1950s (Hewitt de Alcántara,1978; Wionczek,1982).

16. Although the large collective ejidos that had been established by Cárdenas continued to absorb significant credit and investment resources the bulk of the land reform sector (consisting overwhelmingly of individual ejidos) received only marginal attention in the period up to 1970. The sector was starved of institutional credit: "The total number of land reform beneficiaries with whom the Ejido Bank worked in any given year between 1950 and 1970 averaged only 32,000, or roughly two percent of all the ejidatarios in the country" (Hewitt de Alcántara,1980:30).

17. The stagnation of the small-farm sector (private farms as well as individual ejidos) carried a significant cost. By the early 1970s the agricultural product had begun to grow more slowly than Mexico's population; food imports started to rise sharply (Heath,1988; Yúnez Naude,1988). Simultaneously, there was an outbreak of widespread rural unrest, involving the formation of peasant organizations independent of the National Peasant Confederation (CNC), a ruling-party organ that served as one of the regime's support mechanisms. The Echeverría government (1971-76) responded to the twin threats of agricultural stagnation and political agitation by significantly increasing the volume of public resources channeled toward smallholder agriculture, particularly in hitherto-neglected rainfed areas. The private, irrigated farms of the north continued to soak up a share of credit and investment more than proportional to their contribution to crop output value; but, in relative terms, central and southern regions (where rainfed agriculture prevailed) fared better than they had done before 1970 (Goodman et al,1985).

18. Increased public spending on agriculture in the 1970s (culminating in the ambitious SAM programme of 1980–82) led to some improvement in crop output growth. Taking three-year averages (to reduce the impact of rainfall variations between crop years), and comparing equidistant periods, real crop GDP grew by only 11 percent between 1967–69 and 1973–75; however, from 1973–75 to 1979–81, growth more than doubled, rising to 25 percent (World Bank,1989:74). However, the growth-inducing impact of government input subsidies was partially undercut by a pricing policy that discriminated against the rural sector. Two important studies have independently reached a significant conclusion about 1970–82 trends: although total inter-sectoral resource flows (transfers through the price mechanism added to fiscal transfers and transfers via the banking system) showed a net gain for the countryside, relative price movements continued to favour the urban rather than the rural sector (Gómez Oliver,1984;Goodman et al,1985:Appendix A).

19. In the late 1970s and early 1980s public spending on the agricultural sector was fuelled significantly by the expansion of oil export revenues and overseas borrowing, a policy that was not sustainable after 1982. Significant cutbacks in input subsidies contributed to a slowing of agricultural growth, although the growth rate remained somewhat higher than it was in the early 1970s: between 1979–81 and 1985–87, crop GDP increased by 13 percent in real terms (World Bank,1989:74). Post-1985 changes in exchange rate and pricing policy may ultimately stimulate agricultural growth, more than off-setting the impact of cuts in input subsidies: it is too early to draw any conclusions in this respect.

20. What impact have these recent sectoral trends had on the ejido? After 1970, a larger share of public resources were directed toward the small-farm sector and toward rain-fed agriculture. For example, irrigation schemes became

smaller in scale and altered their regional focus; several ejidos in central Mexico benefitted from tubewell projects. Essentially, ejidos benefitted incidentally from a policy switch whose prime purpose was to redress the stagnation of rainfed agriculture in general. The one ejido-specific policy of note was a botched attempt at collectivization; this met with widespread peasant resistance and was abandoned with the change of administration in 1976. Both during the oil boom and in the post-1982 period of fiscal austerity, agricultural development initiatives do not appear to have discriminated significantly between ejidos and small private farms.

21. While, in principle, the Mexican government has continued to support the agrarian reform, the impact of land redistribution has dropped sharply in recent decades. In terms of hectares distributed, the most active periods of land redistribution were 1935-40 and 1964-70 (Table 1): more land was redistributed in the second of these periods but little of it was prime cropland and, since the settlement density was much lower, the number of reform beneficiaries was less in 1964-70 than in 1935-40 (respectively, 278,214 and 728,847). Since 1976 the pace of land reform has slowed considerably. In 1977-88, the average area of land formally redistributed each year was only 0.8 million hectares compared to 3.1 million hectares per year in the previous twelve year period (1965-76); the mean number of beneficiaries per year fell from 40,351 in 1965-76 to 36,283 in 1977-84 (INEGI,1986:273).

22. On various occasions during the past two administrations government ministers proclaimed that there was no more land left to redistribute (Bailey,1981:358; Heath,1985:115). Accordingly, the focus of the agrarian reform has shifted away from handing out land toward a policy of encouraging private sector investment in the ejido sector and "regularizing" the tenure status of all farmers by ensuring they have adequate title to their land (Heath,1985).

23. What is the current extent of the land reform sector? By 1988, no less than 54 percent of national territory had been affected by the land reform (Table 1). However, only 12-13 percent of Mexico's territory (area: 197 million hectares) was under cultivation in this year; moreover, it is estimated that the maximum feasible area for cropping is no more than 35 million hectares or 18 percent of the total land area (Yates,1981a). Thus, even if all the land suitable for cropping were put under cultivation, more than half of the land in the ejido sector would remain in forests, rough grazing or simply devoid of productive use: this represents an important constraint on agricultural growth and employment generation within the ejidos.

24. Focussing on land redistributed as a proportion of the total area of each region, the South Pacific and Gulf are the regions most affected by the redistribution: in each case, 52 percent of the regional area had been subject to reform by 1985 (Tables 2 & 3). The least-affected region (with 45 percent of the land area in the reform sector) is the North Pacific: this is partly because, given the sparsity of settlement here, there have been few invasions of estates by the landless. Also, in the immediate aftermath of the Revolution, many ruling-party politicians either owned or proceeded to acquire large tracts of land in this wealthy agricultural region. Some authors maintain that there was a certain resistance within the PRI regime to carrying out land reform in the North Pacific (Hansen,1971; Johnston,1983:235). Writing of the so-called "Sonora dynasty", Sanderson notes that "revolutionary generals in the North, once in power, had little interest in distributing the new wealth they acquired" (1984:45).

IV. PROBLEMS WITH THE LEGAL AND ADMINISTRATIVE FRAMEWORK OF THE LAND REFORM

25. Rather than provide an account of the legal basis of the Mexican land reform (which has changed significantly since 1917), or a step-by-step description of the administrative procedure by which ejidos are created, this section will focus on some of the main problems created by the framework as it exists today. A detailed account of the legal and administrative framework and how it evolved may be found in Craig (1983), Diaz Cisneros (1983) Sanderson (1984) and Zaragoza and Macias (1980).

26. Two points should be borne in mind. First, the legal foundation of the Mexican land reform derived initially from Article 27 of the 1917 Constitution which affirms that all land and subsoil resources are ultimately the property of the nation. While the principle of private property ownership is conceded the state reserves unto itself the right to modify the existing tenure pattern in order to ensure a more equitable distribution of wealth; to this end the state is authorized to expropriate private property (Zaragoza & Macias,1980:53-54).

27. Second, according to the law, the ejido is "an institution, formally constituted by the federal government, by which property is assigned to a given population group; the ejido is a form of social property; property rights conferred on this population group are inalienable, non-transferable and may not be confiscated; the property shall be exploited as an integrated unit of production, preferably organized along collective lines; it shall be endowed with executive powers and function according to the principles of internal democracy, cooperation and self-management" (Zaragoza & Macias,1980:207).

28. Since the rate of creation of new ejidos has slowed significantly since 1976 and is unlikely (owing to the unavailability of appropriate land) to pick up in the future, discussion will not focus on the problems associated with the procedure for granting land. Instead, it will consider two important respects in which the difficulties of interpreting land reform legislation constitute a source of insecurity for existing ejidatarios and private farmers.

(a) Holding-size specifications and land titles. The agrarian reform statutes lay down holding-size limits for ejidos and private farms. Limits on the size of private farms take into account variations in land productivity: one hectare of irrigated land is assumed equal to two hectares of rainfed land, four hectares of pasture land and eight hectares of brush or rough grazing in arid lands. Private farmers may own a maximum area of 100 hectares of irrigated land, or the equivalent in other types of land. However, there are several exceptions to this rule, exceptions whose wisdom has been disputed (e.g. by Yates,1981a).

29. In the case of cotton, properties of up to 150 hectares of irrigated land (or the equivalent) are allowed. The limit is set at 300 hectares (irrigated) if the crop is vanilla, olives, cocoa, sugar cane, coffee, henequén, rubber, coconuts, grapes or fruit trees. There are a number of definitional problems here. It is not clear if the category "fruit trees" includes nuts or fruits that grow on bushes. Given that grapes are singled out for special treatment, why not strawberries also? Finally, it is not apparent whether all forms of sisal fall within the 300 hectare limit, or just henequén (Yates,1981a:177).

30. In the case of cattle ranches, the ceiling is calculated according to the land area needed to support 500 head of cattle or an equivalent number of small livestock. There is some ambiguity here because, in the 1971 ammendments to the reform law, reference is made not only to the 500-head standard but also to a

ceiling of 800 hectares for cattle ranches in areas of poor-quality pasture. The two specifications are mutually inconsistent because it is impossible to support 500 head of cattle on 800 hectares of the poorest-quality grazing land. Also, the equivalences between head of cattle and head of sheep, pigs and goats is nowhere indicated (Yates,1981a:178).

31. Finally, it is not clear what is the maximum area of a cattle ranch that may be devoted to crop cultivation without the property being reclassified as an arable farm (and therefore subject to tighter holding-size limits). While the legislation originally prohibited stock rearers from growing crops, the 1981 Agricultural Development Law sanctioned "mixed" farming, failing however to specify the acceptable ratio of cropland to grazing land (Sanderson,1984:48).

32. Effective enforcement of these land-use and holding-size restrictions presupposes that the government is reliably informed of land-use capabilities throughout the nation. Responsibility for assessing land productivity rests with the local delegations from the Agrarian Reform Ministry that are based in each state. The survey work that must be carried out before appropriate holding-size limits may be specified remains incomplete. Therefore, in several parts of the republic, the definition of what constitutes an acceptable holding size remains vague. Moreover, actual enforcement of these provisions varies widely between regions.

33. Also, there is a significant loophole in the legislation that explains much of the inconsistency in the enforcement of holding-size limits. Changes made to the land reform law in 1947 permit large estate owners to obtain legal guarantees (the right of amparo) that their property will not be expropriated for an indefinite period, pending official investigation of the legitimacy of their hold over land; during this period the landowners are issued with certificates (certificados de inafectibilidad) protecting their properties from seizure. This protection is provided

by judicial authorities at the state level and has often served as a "preemptive strike" against the agrarian reform, blocking redistribution before any petitions for land have actually been lodged.

34. The legislation also contains stipulations about the size of parcels on individual ejidos: according to the Federal Agrarian Reform Law of 1971, parcels should contain ten hectares of irrigated land (or twenty hectares of rainfed land) (Sanderson,1984:49). This law appears to be honoured in the breach: in 1981, the average size of parcels on individual ejidos was 7 hectares. In most cases, the ejido land base has proved too small to accommodate all of those petitioning for land in a manner that is consistent with the rule about parcel size. Indeed, legal provision exists for the land to be parcelled out in smaller units than officially prescribed, when the ejido is formally inaugurated (Diaz Cisneros,1983:21).

35. However, in some cases ejidatarios have failed to receive formal title to their parcels (títulos parcelarios) because they are smaller than the minimum size required by the law (Stavenhagen,1975:147). In 1984, the Agrarian Reform Ministry announced that 86 percent of the holdings in the ejido sector lack secure tenure owing to the absence of certificates of title (Heath,1985:117). In relation to credit access, it might be argued that the absence of title to the land is not a significant obstacle since ejido land may not, under any circumstances, be used as collateral for securing a loan. However, the possession of title does confer greater security of tenure upon the ejidatario, in the context of his status within the Ejido. The ejido leadership (Comisariado Ejidal) has the power to initiate procedures for dispossessing ejidatarios whose parcels have been left idle or rented out. These powers are sometimes exercised selectively and arbitrarily. It could be argued that the absence of title makes it more likely that the ejidatario may be unfairly evicted if he falls foul of the leadership.

(b) Control over the identity of those working ejido land. Formally, there are innumerable restrictions on the persons eligible to work ejido land. The legislation is designed to prevent the transfer of ejido property (or income derived from this property) to persons other than the original ejidatarios or their descendants. In this respect the law is full of contradictions, lending itself to selective interpretation and enforcement. Article 77 of the Reform Law prohibits ejidatarios from using hired hands as a substitute for their own labour; however, they may employ hired workers as a supplement to their own labour input, providing they themselves are fully employed in working the parcel (Zaragoza & Macias,1980:175). Sharecropping is prohibited, "except in special circumstances" (Craig,1983:257): for example, if the widow of an ejidatario has no sons of working age to work the land on her behalf. If attempts are made to rent or sell the parcel, or if it is left idle for two years or more, the land may revert to the community and be reallocated to other members of the ejido.

36. Of all the formal restrictions on land management, none has generated more confusion than the provisions that ban the renting out of ejido parcels. While all scholars agree that, in practice, renting-out is widespread (Yates,1981a:181; NACLA,1976:18), there is a lack of agreement about the circumstances in which this is illegal. Bailey (1981:357), Craig (1983:257) and Yates (1981a:181) flatly assert that renting is illegal. However, Bartra (1975:143), Van Ginneken (1980:63) and Zaragoza and Macias (1980:176) indicate that, "in special circumstances", renting may be permitted under the law.

37. Following passage of the 1971 Federal Agrarian Reform Law, the ban on renting was modified slightly: "While leasing is prohibited by Article 55...exceptions are granted in Article 76, which permits parcel leasing and the use of salaried

labour. This is allowed in those cases where the ejidatario cannot take on certain tasks profitably, even though he might dedicate his total efforts to them" (Bartra,1975:143). Such provisions give enormous latitude to federal and local authorities in deciding whether specific instances of renting are permissible; since ejidatarios are generally reluctant to admit to renting (Mummert,1987:532) it would appear that they themselves are not convinced that the law will back them up.

38. The restriction on renting means that ejido land does not necessarily end up in the hands of those with the means and the vocation to work it. Although, in spite of the law, renting is currently widespread, it is reasonable to argue that, in the absence of any ban on leasing, the incidence of this practice would be even greater: there are presumably a number of ejidatarios (particularly those on bad terms with the ejido leadership) who are deterred from renting by the prospect that their parcels may be confiscated. Theoretically, restrictions on leasing would lead to suboptimal use of land, driving down the average productivity of ejidos in relation to private farms.

39. The situation has been further complicated by the Agricultural Development Law (1981) which seeks to promote "production units" in which ejidos and private producers can jointly produce staple crops (Bailey,1981:360); the terms of this arrangement were liberalized by legislation in late 1983, making the contract between ejidatarios and private farmers renewable, not annually as before, but once every three years (Heath,1985:118).

40. While the 1981 Agricultural Census sought to determine the number of these "mixed" (ejido/private) production units, the data (Table 4) probably underestimate the extent to which ejidatarios and private farmers pool resources. This type of association admits of several possibilities. There are probably many cases where the ejidatario supplies his land (and possibly his labour) while the

private farmer finances capital inputs. The law envisages that the ejidatario shall receive a share of the profits generated from the association. In practice, who is to say if he receives an equal share of the profits or is merely paid the equivalent of a rent for the land? The new legislation may be interpreted as an implicit legalization of the renting out of ejido parcels.

41. On the other hand, the 1981 legislation increases the powers of the Ministry of Agriculture to seize underutilized land and farm them out to landless peasants (Bailey,1981:360). The 1981 Census distinguishes, for the first time, between holdings that are being farmed and those that are idle (Table 5). Thus, ejidatarios who rent to private farmers and perform no work on the land themselves (preferring to pursue off-farm employment) may still run the risk of having their land taken away from them. Since there is no clear-cut distinction between renting out and sharing in the profits of a joint venture (both involve some payment to the ejidatario), the new law lends itself to arbitrary application: ejidatarios have every reason to think twice about collaborating with private farmers, for fear they may have their parcels confiscated. This is another respect in which the law may adversely affect the average productivity of the ejido sector, by reducing the transfer of land from less efficient to more efficient producers.

V. ACCESS TO LAND AND LAND USE PATTERNS.

42. The quality of land distributed under the land reform has declined since 1940. Before that year, cropland accounted for about 20 percent of all the land handed out; 4 percent of the total land distributed was irrigated. However, in 1965-76, only 8 percent of the newly incorporated land was suitable for crops,

virtually none of it irrigated. There was some improvement after 1976, with 14 percent of the land added to the reform sector being suitable for cultivation (2 percent of all land distributed was irrigated). Currently, the total cropland in the reform sector accounts for 14 percent of the cumulative land reform area (i.e. taking into account all land added to the sector from 1900 to 1984)(INEGI,1986:273; Table 6). Non-crop land comprises forests, natural pasture, rough grazing and land that is inappropriate for any agricultural use.

43. The 1981 Agricultural Census indicates that the average size of the ejido parcel was 7.3 hectares; in the crowded states of Mexico and Puebla (both bordering on the Federal District), average parcel size was respectively 2.1 and 3.5 hectares. While the average holding size for privately-owned land is much larger (73.6 hectares in 1981), just under 60 percent of both private and ejido enterprises operate small holdings (up to 5 hectares) (Table 7). "Mini holdings (2 hectares or less) are more common in the private sector (40 percent of all holdings) than in the ejido sector (31 percent), suggesting perhaps that inheritance procedures in the ejidos (the stipulation that parcels be passed on intact to a single heir rather than divided between several heirs) have acted as a partial brake on holding fragmentation.

44. In 1981, proportionately more land was left out of production (idle) in the private sector than in the ejido sector (27 percent and 15 percent respectively)(Table 5). However, if the comparison is restricted to enterprises no larger than 5 hectares, the proportion of land left idle was the same for both tenure categories (6 percent). In 5 states, more than half of the land in private holdings was idle in 1981; in the ejido sector, the same level of neglect was true only for the state of Sonora (Table 8).

45. If these figures are accurate, they depict a massive underuse of agricultural land by larger farm enterprises. In view of the possibility that idle land may be expropriated by the state, landowners would surely tend to understate the proportion of their holding not currently in production. Therefore, the census data probably underestimate the amount of land left idle. On the other hand, if the data are accurate, they still reflect a high level of underexploitation; also, if landowners did own up to the amount of land left out of production, this would suggest that they do not treat very seriously the threat of expropriation. However, in all probability, the data are not accurate (see Appendix A).

46. Since the vast majority of ejidos are individual rather than collective, there is some justification for treating the parcel rather than the total land endowment of the community as the basic unit of enterprise. There is a large gap between the area formed by summing all the parcels in individual ejidos (equal to 17 percent of land in holdings) and the area covered by the whole ejido sector (just over half the land in holdings) (Table 6). This gap corresponds primarily to the communal lands of individual ejidos; the collective ejidos contribute to a lesser degree.

47. The considerable amount of land tied up in communal areas raises important policy issues: if this land were poorly managed it would greatly reduce the overall productivity of the ejido sector in relation to private farms. From a crop output perspective poor management is probably not a significant constraint since much communal land is steeply sloping with poor soils and and limited crop potential: even if management were significantly improved the impact on crop output would probably be limited.

48. However, the returns resulting from improved management of communal forest and rough grazing land would probably be considerable. At the moment,

forests are mined indiscriminately both for commercial purposes and for domestic heating and cooking fuel. The potential for controlled, ecologically-responsible timber extraction is underexploited. One of the prime purposes of the Agricultural Development Law (1981) was to use joint ventures between ejidos and the private sector to increase the efficiency of forestry activities: "although three-quarters of forest property is in the hands of ejidos they contribute only 17 percent to the output of forest products; in contrast, private enterprise owns 20 percent of forest property and accounts for 65 percent of forest production" (Excélsior,19&20 March,1984).

49. Resource depletion from overgrazing is also a serious problem. Yates indicates that in 1970 the available grassland per "herbivorous animal unit" was roughly half as much in the ejido sector as in the private sector (1981a:94). However, Yates is referring to the private and ejido sectors as a whole: if the comparison were restricted to small farms in each sector there was probably less overgrazing in the ejidos (because, unlike small private farmers, ejidatarios have access to communal grazing land).

50. Between 1970 and 1981, the cattle herd in the ejido sector increased by 61 percent (compared to only 8 percent in the private sector); the area per head of cattle (total area, not grassland) declined from 17.3 to 13.3 hectares in the ejido sector. The ejidatario's reliance on communal pastures is reflected in Table 9 which shows the proportion of the holding in different types of land use: only 14 percent of the ejido parcel is occupied by natural pasture compared to 37 percent in the case of private holdings.

51. Both in terms of total herdsize and the number of purebred cattle the private farms control more head than the ejido sector. However, on farms up to five hectares the mean number of cattle per enterprise was roughly the same for

both ejido and private enterprises in 1981 (Table 10). This means that, focussing on comparably sized farms, there appears to be no significant difference between tenure categories in wealth terms.

52. There is no significant difference in the proportion of cropland under fallow between tenure categories (16 percent and 17 percent respectively, for private and ejido enterprises). However, a much larger proportion of the land in private enterprises has no defined use (13 percent compared to 3 percent for ejidos), suggesting a lower intensity of agricultural exploitation. If the comparison is limited to small farms (not exceeding five hectares), the ejidos also have a lower proportion of land with no defined use, but the gap between tenure categories is less significant (4 percent and 1 percent undefined, for private farms and ejidos respectively) (Table 9).

53. Only to a limited extent may this difference in the level of exploitation be accounted for by variations in average land quality between the two tenure categories. Access to irrigation no longer varies significantly between tenure categories (Table 11). In the case of enterprises up to five hectares, ejido parcels are slightly better served than private parcels (respectively 18 percent and 13 percent were irrigated). This is a significant change on 1970 when private enterprises up to five hectares had more priveleged access to irrigation: 24 percent of arable land irrigated compared to 15 percent in the case of the ejido sector.

54. There are considerable variations between regions in the proportion of cropland under irrigation (Table 12). In the Gulf and South Pacific regions where low and erratic rainfall is less of a constraint, under five percent of ejido cropland is irrigated. In the North Pacific region, where the climate is so arid that irrigation is indispensable, the private sector is much better served by irrigation

than the ejido sector: respectively 60 percent and 46 percent was irrigated in 1981. Between 1970 and 1981 the proportion of cropland under irrigation actually declined (for both ejidos and private farms) in the North Pacific and North regions. In the Centre, the proportion of land irrigated grew in the case of ejidos, but shrank in the case of private farms. This marks an important reversal of pre-1970 trends (Wionczek,1982).

55. At a nationwide level, there is not a significant difference in the cropping patterns of the private and ejido sectors: in both cases, the three crops that cover the largest area are respectively maize, beans and sorghum (Table 13). In 1981, these crops accounted for 75 percent of the area harvested in the case of private holdings and 84 percent in the case of the ejido sector. The cropping pattern is less diversified on ejidos and, in the aggregate, generates lower revenue per hectare than the private farms. The lower level of diversification may partly reflect the state credit bank's control over the cropping pattern: producers working with Banrural (three-quarters of whom are ejidatarios) have less freedom of choice over the crops they cultivate.

VI. LABOUR ORGANIZATION AND EMPLOYMENT

56. In general, there is little or no difference in employment patterns between individual ejidos and villages consisting of small private landowners: the ejido leadership has no influence on the amount of work that households perform on their individual parcels and the amount of work performed by collective labour gangs, at the behest of the Comisariado, (e.g. maintenance of communal infrastructure) tends to be limited.

57. According to the 1981 census, in individual ejidos, 50 percent of ejidatarios employ casual wage labour at some time in the crop cycle. However, these data shed no light on the number of days per year during which labour is hired in (hiring-in is usually restricted to seasonal peaks, particularly harvesting). The same source indicates that only 6 percent of ejidatarios are involved in cooperative forms of production with other households (Table 15). This is undoubtedly a gross underestimate and may reflect a tendency for ejidatarios to conceal practices whose legality is in doubt. The data almost certainly fail to reflect the frequency of sharecropping arrangements among ejidatarios, a practice that case-study evidence indicates to be widespread (Finkler,1978; Gregory,1986; Mummert,1987).

58. Finally, the available labour use data are of limited use because they refer only to labour employed on the farm: they provide no way of assessing the role of off-farm employment in the total labour profile of the ejido household.

59. In all ejidos, the employment pattern is highly diversified. Diversity is a response to three circumstances. First, there is considerable wealth differentiation within the ejido, initially a consequence of the differences in parcel size and land quality: latecomers to the ejido are generally worst off in terms of resource endowment.

60. Second, the majority of ejidatarios in Mexico control too little land to depend entirely on this as a source of income: they are obliged to look for off-farm work, either as casual agricultural labourers or in the urban sector (particularly in construction). In one study, conducted in the 1960s, it was calculated that 84 percent of all ejido plots were too small to provide full employment and an adequate income for a peasant family; the proportion was roughly the same (85 percent) among private farms (Stavenhagen,1975:146).

61. Recourse to off-farm work has been further encouraged by urban real wage trends which (until recently at least) have been more favourable than trends in the farm-gate prices of crop staples (Graph 1). Moreover, since only 14 percent of the land in the reform sector is suitable for cultivation (INEGI,1986:273), the agricultural employment capacity of the ejido sector is severely constrained.

62. Third, there is an inbuilt employment problem in the ejido sector because only one child is permitted to inherit the family parcel: the dispossessed younger sons and daughters have to seek alternative employment. Some of this surplus labour has been absorbed by agroindustrial activities conducted at the ejido level; agroindustries (e.g. cotton ginning or henequén defibration) are most developed on the collective ejidos (Wilkie,1971). The fierce competition for jobs has often resulted in overmanning and the appearance of "phantom workers" on the payroll of collective ejidos (Brannon & Baklanoff,1984). Generally, however, on both individual and collective ejidos, children failing to inherit a usufruct title must seek work <u>outside</u> the ejido sector.

63. This is important because it means that most ejido households have one or more members engaged in off-farm work, frequently involving temporary (often seasonal) migration. Migration leads to the development of a family network that links even the most remote rural areas to metropolitan centres in Mexico and to the U.S. labour market. The development of such a network makes migration progressively easier by providing new migrants with places to stay, emotional support and information about jobs. Rural outmigration is offset to some degree by return migration; moreover, those who move permanently to the towns often contrive, via the urban-rural kin network, to retain a toehold on the land (Arizpe,1981).

64. In his study of an ejido in Mexico state, De Walt (1979:220-222) found that 65 percent of the ejidatarios had worked in neighbouring Mexico City at least once, usually on a seasonal basis; moreover, 72 percent of ejido members had at least one child living in the capital city. Both De Walt (1979:221) and Roberts (1982:310)--the latter writing on ejidos in the Bajío region--report the absence of a significant correlation between migration and wealth: specifically, the propensity of ejidatarios to engage in off-farm work does not vary inversely with farm income.

65. The importance that farmers attach to off-farm works helps to explain why farms are tending to employ less labour per hectare. In the 1970s there was a significant expansion in the number of enterprises using tractors; the growth rate was higher in the ejido sector than the private sector, to compensate for the relative scarcity of tractors in the ejido sector before 1970 (Gómez Oliver,1984; SPP-UNIDO,1986). Between 1970 and 1981, the share of cattle used as work animals halved for both the ejido and private sectors (Table 16), reflecting the substitution of tractors for ploughing, cultivation and carting.

66. In the same period, there was an expansion of livestock activities and a move toward less labour intensive crops (notably sorghum), trends that were as marked for small as large farmers (CIMMYT,1974:7; Norton,1987). Government programmes whose purpose was to promote small-farmer adoption of higher-yielding maize varieties encountered some resistance to the introduction of new technologies involving higher labour inputs per hectare: it has been argued that this resistance reflects farmers' calculations that they may earn more in off-farm than in on-farm work (Villa Issa,1977:216; Redclift,1983).

67. The tendency for farmwork to employ less labour per hectare means that there is reduced opportunity for ejidatarios to supplement their farm incomes by

working as casual day labourers for other farmers: there has been a decline in the employment of hired hands in agriculture (Gregory,1986). A recent study of an ejido in Michoacán demonstrated that only 9 percent of farmers hired in labour: increased use of tractors had reduced the need to hire in labour; also, households with insufficient family labour to carry out farm work usually preferred to enter into sharecrop arrangements with "labour-surplus" households, rather than employ wage workers (Mummert,1987). Comparing this study with a 1956 study of the same ejido (Friedrich,1970), it is clear that there has been a decline in the number of ejidatarios employing temporary wage labourers and a rise in sharecropping (Mummert,1987:536).

68. In the cash-poor, high-risk environment of most ejidos sharecropping makes better sense for labour-deficit households than hiring in wage workers. Typically, sharecropping entails households that are short of labour handing over land to "labour-surplus" households with the latter assuming full responsibility for cultivation. The two households share the harvest (and the risk of crop failure) equally between them. The household supplying land is usually responsible for supplying draught animals, seed and, in some cases, fertilizer. In most cases, the collaborating households belong to the same kinship group (Mummert,1987:529).

69. The labour-surplus, land-deficit households that are actively looking for land to work are not necessarily the poorer or less powerful party to the arrangement. A study of irrigated ejidos in the Mezquital Valley (Hidalgo) reveals that these households may be highly entrepreneurial, simultaneously involved in a number of sharecropping deals. Thus, "sharecropping provides an avenue for economic improvement" (Finkler,1978:105).

70. Sharecropping enhances the labour mobility of ejidatarios: it enables them to share in the output of their land while freeing them to pursue off-farm work.

The same effect is achieved by the leasing-out of ejido parcels, a practice which appears to be at least as widespread as sharecropping. In Mummert's study, only 3 percent of households admitted to renting out their land but, according to key informants in the ejido, no less than 30 percent of ejidatarios were actually engaged in leasing-out. In this ejido, renting-out is perceived as a last resort because the annual rent received amounts to less than the expected value of the maize crop that will be cultivated on the rented land (Mummert,1987:532).

71. It is mainly the poor who engage in renting-out because they cannot afford to sharecrop: in other words, the off-farm work on which they depend for survival generates the income to cover family subsistence but is not sufficient to cover the input purchase entailed by sharecropping. While sharecrop arrangements take place primarily between different households in the same ejido, rental arrangements cover the leasing-out of ejido land to private farmers as well as transactions between ejidatarios.

72. Although it is impossible to quantify the extent of renting-out, there is a broad concensus that the practice is so widespread as to open up an enormous gap between the formal distribution of land between tenure sectors (as reflected in the census data) and the real control that ejidatarios and private farmers exercise over resources (Reyes Osorio et.al.,1974:451; Zaragoza & Macias,1980:171; Warman,1977). One source estimates that the illegal renting of ejido parcels affects "from 50 to 90 percent of all ejido land in several irrigation districts in Sonora and Sinaloa, and from 35 to 50 percent in the Bajío, in Michoacán and Jalisco" (Yates,1981a:181). The North American Congress for Latin America reported that, "In Sonora, about 70 percent of the ejidos are rented, especially in the irrigated areas of Navajoa and the Valle del Yaqui, while estimates for...Sinaloa range between 40 and 80 percent" (NACLA,1976:18).

73. To conclude, the labour-substituting trends in agriculture, coupled with the frequency of leasing and sharecropping, argue strongly that the land reform has not served to "tie" the rural population to the land, but has been associated with an accelerating process of rural outmigration. There is no indication that the intensity of this process varies significantly between ejidos and small private farms. The incidence of outmigration is probably the same for both tenure categories since the mean holding size is the same, the prevalence of minifundia restricting the scope for on-farm employment expansion. On the other hand, while average land quality is now roughly the same for ejido and small private farm sectors, the proportion of land left out of agricultural use is somewhat higher in the case of small private farms (according to the 1981 census data).

VII. ACCESS TO CREDIT

74. Compared to small private farmers, ejidatarios depend more on state-lending institutions for credit because the agrarian reform law prevents them from mortgaging their land: since they cannot use their parcels as collateral it is difficult for them to secure loans from commercial banks. The agricultural development bank, Banrural (in common with previous state institutions that lent money to the ejidos) waives the collateral requirement and exercises weak sanctions against loan default. This is one aspect of the paternalistic relationship between state banks and ejidatarios, a paternalism that also colours Banrural loans to private farmers.

75. The agricultural development bank, Banrural, accounts for about 45 percent of total lending to agriculture and is the main source of credit for small farmers in both the ejido and the private sectors: about three-quarters of its

clients are ejidatarios and the credit Banrural extends to this group amounts to roughly one-third of all loans to agriculture (Table 17).

76. The paternalism inherent in development bank lending reflects an ethos that has its roots in the Mexican land reform: political considerations tend to assume precedence over economic ones; credit, like land, is used to buy the political support of the peasantry rather than primarily to enhance agricultural productivity. This approach may be traced back to the 1926 Act which first established an institutional credit facility for the ejidos. According to Reilo (1987:30), the farmer groups that emerged at this time as the primary channels for state credit were essentially created by the government and served to enhance its powerbase in the countryside. The collective ejidos that were established by Cárdenas in the 1930s developed out of these state-implemented credit associations (Hewitt de Alcántara,1978:69).

77. The government operated on the assumption that peasants were likely to remain, first, poor and, second, averse to adopting new technology: therefore, the state would likely remain their only source of loans and it would also have to assume responsibility for providing the appropriate inputs. Little incentive was given to peasant farmers to mobilize savings on their own behalf, nor little credence given to their ability as farm managers. This attitude affected the state's dealings with both small private farmers and ejidatarios and is almost as widespread today as it was in the early period of the regime.

78. The negative impact of this paternalistic approach is currently discernible, first, in decisions about the crop mix and, second, in arrangements for input provision. Banrural exercises considerable influence over the cropping pattern since only certain crops (basically, those in the guarantee-price regime) are eligible for financing. The crop pattern tends to be less responsive to price

trends than it would be if the bank allowed farmers to decide for themselves what crops to finance with the credit resources they receive. The adverse consequences of this policy are evident in the collective ejidos (which are essentially managed by Banrural): in La Laguna and the Yucatán these ejidos continue to monocrop (cotton and henequén respectively), despite a progressive deterioration in the relative profitability of these crops (Wilkie,1971; Brannon & Baklanoff,1984 & 1987).

79. Even on the individual ejidos and among small private farmers working with Banrural, the cropping pattern is unnecessarily rigid. In the state of Morelos, for example, the state's credit policies (reinforced by cropping restrictions defined by the land reform law) obliged ejidatarios to continue growing rice and sugar, despite the declining profitability of these crops. Private farms in the same regions (working with commercial banks, not Banrural) showed greater inclination to diversify (Stringer,1972).

80. Second, inputs such as seed, fertilizer and pesticide are provided in kind by Banrural, on the assumption that credit resources are more likely to be misappropriated if farmers are given cash with which to purchase their own inputs. However, there is abundant evidence to indicate that farmers often sell the inputs they receive from Banrural, exchanging them for cash on secondary markets (Reilo,1987:65). A further problem arises from Banrural's failure to ensure timely delivery of inputs: farmers frequently complain that fertilizer and pesticide arrive too late in the crop cycle to be fully effective.

81. Also, partly in order to achieve scale economies in procurement, the Bank operates with a standardized input package that is insensitive to regional variations in input requirements and prices. These variations are significant at a micro-regional as well as a regional level: no opportunity is given to farmers to

boost yields by carefully tailoring the input package to the precise needs of their land; no confidence is placed in their ability to identify these needs. For example, studies indicate that farmers have little confidence in the sorghum varieties supplied to Banrural by the state-owned seed manufacturer, PRONASE; they often prefer to buy from commercial manufacturers, finding that these seeds offer higher yields (Suárez,1982-83; Rello,1987:65).

82. Although in these respects, ejidatarios and private farmers lending from Banrural face the same constraints, there are two obstacles to credit access that apply specifically to ejidatarios. First, unlike private farmers seeking working-capital loans from Banrural, ejidatarios cannot make individual credit applications: credit is negotiated collectively through the ejido leadership. Individuals seeking credit need the backing of the leadership and if, for personal or political reasons, they have a conflict with the Comisariado they may be denied access to credit. By the same token, the political allies or favourites of the ejido leadership may obtain preferential treatment, irrespective of their creditworthiness or their past repayment record (Rello,1987:84).

83. There is a long tradition of ejido leaders being coopted by the banks. This contributes to infighting within the ejido, causing many ejidatarios to feel little identification with the ejido as a whole and making them disinclined to adopt a cooperative or responsible attitude toward the bank. In many ejidos, breakaway factions have formed: disgruntled with the corruption of entrenched leaders who are in cahoots with bank officials, ejidatarios have sought to establish independent credit unions. The formation of such independent unions has often met with brutal repression because they threaten the power base of local leaders (Wilkie,1970).

84. Second, if some ejidatarios fail to repay their loans at the end of the crop cycle, the bank may respond by refusing to extend fresh credit to the ejido

as a whole: thus, the actions of an insolvent minority may harm the interests of more creditworthy individuals with a good repayment record (Reilo,1987:84). The bank may feel that defaulters are more likely to pay up if faced with pressure from angry peers who have been cut off from credit. However, experience in various countries demonstrates that effective pressure is only brought to bear when the group is small and tightly knit (Adams & Vogel,1986).

85. In this respect, the ejido is often an inappropriate unit for credit allocation purposes. The members of an ejido do not in most cases work together on a cooperative basis, either for production or marketing purposes. The frequent renting out of parcels to outsiders and the high absenteeism of ejidatarios (owing to temporary migration) help to undermine solidarity between ejido members. Moreover, group solidarity is likely to be diluted by the sheer size of most ejido communities and the clientelist policies often pursued by the ejido leadership.

86. This helps to explain the lack of credit discipline in state-bank lending to ejidatarios. The only sanction that Banrural may bring to bear on ejidatarios who fail to repay their loans is to deny them further credit: they cannot seize their assets and in many cases there is no crop to seize either. This increases the likelihood of individual default. Given that these individual cases of default make it likely that the whole ejido will be cut off from credit in the next crop cycle, there is little incentive for the solvent to repay their loans. A recent survey of rural financial markets concludes that "the most important factors in determining whether a loan was likely to be delinquent were those related to the borrower's assessment of the probability of obtaining a new, larger loan in the future on a timely basis" (Adams & Vogel,1986:483); even the most creditworthy ejidatario is likely to have low expectations in this respect.

87. The likelihood of individual default is further increased by the tendency of Banrural to spread credit resources too thinly: rather than restricting credit to producers with productive potential Banrural is obliged, for political and social welfare reasons, to operate with a large number of poor farmers. Partly because it continues to finance a large number of marginal producers, Banrural has responded to post-1981 resource constraints by reducing its long-term investment lending to a much greater extent than its short-term working capital loans: the average volume of investment loans fell by 58 percent between 1980-82 and 1986-88, compared to 20 percent in the case of working-capital loans (Table 18). In the 1980s, despite severe funding constraints, there has been an increase in the proportion of land planted to maize that is covered by Banrural credit: from an average of 34 percent of the sown area in 1980-82 to 39 percent in 1986-88 (Banrural,1989). Since Mexico's marginal farmers are primarily maize growers these data suggest the extent to which Banrural loans continue to be directed toward poorer producers (mainly ejidatarios). In the case of ejidatarios (unlike small private farmers), loan provision is not based on individual creditworthiness, increasing the likelihood of default.

88. State lending policy reflects a confusion between the objective of poverty alleviation (using short-term credit as a transfer payment) and the objective of enhancing agricultural productivity (Goodman et al,1985:71). Hewitt de Alcántara (1978:67-69) observes that the credit policy of the development banks has fluctuated between the objective of providing for broad-based communal development and the objective of restricting credit to those with the means to repay. When the first of these objectives predominates (e.g. in 1980-82), there is an enormous burden placed on the financial health of the bank as many loans are not recovered. Currently, the supply of fresh credit is severely restricted by

the funds that have to be set aside to cover overdue loans and to finance rescheduling. The effect of spreading credit too thinly is to limit the productivity of agricultural credit. While the problem arises with small farmers in general, it is particularly acute in relation to ejidatarios.

VIII. THE EJIDO MARKETING SUPPORT PROGRAM

89. Partly in response to rural social upheaval in the early 1970s, the government launched the Ejido Marketing Support Programme (PACE) in 1975 (Fox,1986:197). Although originally targetted at ejidatarios, the programme was subsequently expanded to all small farmers. Therefore, the problems described here are not a consequence of institutional biasses associated with the land reform: they apply equally to ejidatarios and private farmers.

90. PACE was conceived as a means of bolstering the incomes of small-grain producers by reducing their dependence on "exploitative" middlemen operating at the village level (Boruconsa,1982:16). By facilitating access to rural warehouses owned or leased by the state (under the aegis of Conasupo), PACE was intended to provide alternative marketing channels to ejidatarios, purportedly making it harder for middlemen to force low prices on producers and thus increasing the effectiveness of the state's guarantee price policy. The ultimate objective was to stimulate output growth by making it easier for small producers to generate savings from staple production, enhancing prospects for on-farm investment (Fox,1986:199).

91. PACE focusses on basic grains and aims to reimburse producers for transport and handling costs incurred in delivering their grain to state warehouses. The level of freight reimbursement is based on the distance between warehouse

and field and weighted according to the quality of road access. Transportation costs tend to be significantly higher on ungraded roads, not only because of accelerated vehicle depreciation and longer journey time, but also because on these routes there is much less competition between freight handlers (Fox,1986:204).

92. In order to discourage wholesalers from taking advantage of this marketing subsidy, reimbursement is, in principle, restricted to those delivering less than 50 tonnes of grain per year to the rural warehouses. Conasupo lends sacks to farmers to facilitate transport and handling. The rural warehouses are located within or close to an ejido and staffed by ejidatarios nominated by the members of the ejido; Conasupo trains the warehouse hands in book-keeping, quality control and fumigation procedures.

93. The impact of this programme is partly contigent upon the extension of the rural warehouse network. Warehouses have, for sound economic reasons, been located primarily in areas where the largest grain surpluses are produced. They tend to be few and far between in poorer, more remote regions; yet, in terms of PACE objectives, it is in the poorest areas that access to warehouses needs to be facilitated, precisely because it is here that the middlemen have the strongest monopoly over marketing and producer incomes are most in need of enhancement. This contradiction has never been resolved.

94. The poor promotion of PACE means that it covers only a minority of producers. Moreover, many of those registered in the programme do not actually participate in it, preferring to sell their grain to private traders. Less than 10 percent of those who signed up for the programme in 1975-76 ultimately sold grain to Conasupo (Fox,1986:200). In 1984-85, only 16 percent of the Michoacán producers registered in PACE actively participated in the programme

(Heath,1987:278). Admittedly, these figures are not a perfect measure of the programme's impact: easier access to Conasupo warehouses may enable producers to lever middlemen into paying them an acceptable price, a benefit enjoyed both by participants and non-participants in PACE. However, a further reason for low participation rates is that, in the absence of timely credit facilities, some producers are driven to seek loans from middlemen, committing their harvest in advance (invariably at a price well below the official level).

95. A study in Zitácuaro, Michoacán, demonstrates that, even in areas with a good warehouse network and excellent road access, most ejidatarios are disinclined to sell their grain to the state. The quality controls operated by Conasupo entail payment deductions for grain that is dirty, damp or pest-ridden. Ejidatarios argue that private traders impose less demanding product standards. A further objection concerns the great expenditure of time involved in selling to Conasupo (there are long queues at the warehouses in the immediate aftermath of the harvest) and producers' understandable preference for on-the-spot payment in cash.

96. By and large, in this area the programme seemed to cater for producers with more than two tonnes to sell. The author concludes that only farmers with more than two tonnes to market (a minority of the farmers in this area) do find it worthwhile to sell to Conasupo. The low level of direct sales from farmer to state is less a reflection of problematic access to the warehouses than it is a consequence of the limited number of farmers producing a significant marketable surplus of maize. This in turn is attributable to low yields (exacerbated by ineffective credit policies) and inadequate price incentives: these factors appear to pose more fundamental constraints than the nature of marketing facilities (Heath,1987).

97. In the rich agricultural state of Chihuahua, Fox (1986:208-209) discovered that middlemen evade the 50-tonne ceiling on grain sales by making a series of relatively small deliveries to separate but close-together warehouses, selling under the names of clients and family members. To conclude, the marketing subsidy operated by PACE manifests the same contradictions as subsidized credit programmes: it was initially designed to benefit the poorest producers but has ended up providing an unnecessary cushion to commercial-scale producers and wholesalers, particularly in those more prosperous agricultural regions where the warehouse network is most fully developed.

IX. COMPARING THE PERFORMANCE OF EJIDOS AND PRIVATE FARMS.

98. From the discussion in the preceding sections it is possible to frame a number of hypotheses:

1. Ejidatarios have less security of tenure than private farmers because they often lack usufruct title to their land, making it more likely that they may be arbitrarily evicted; in the event of eviction they would receive no compensation for improvements made to their holding, thus reducing the incentive for on-farm investment.
2. Unclear laws concerning the circumstances in which ejidatarios may legitimately rent-out their land or engage in sharecropping inhibit the transfer of land to the most efficient producers; accordingly, there is no process of enterprise concentration in the ejido sector, failing to offset the adverse impact of holding fragmentation on production.

3. Mismanagement of communal land in the ejidos depresses the average productivity of this sector in relation to private farms.

4. Ejidatarios face greater difficulties in access to credit than private farmers: first, because they cannot use their land as collateral, cutting them off from commercial bank loans; second, because lending by Banrural has to be arranged thorough Ejido leadership. This introduces a possibly non-economic element in the decision regarding credit allocation.

Hypotheses (1)-(4) each suggest that land productivity will be lower on average in the ejido sector than in the private farm sector. There is one countervailing hypothesis:

5. Stipulations in the land reform law concerning holding-size limits and land use restrictions are complex and contradictory: this makes it difficult for private farmers to judge when they are contravening the law and when they are likely to face expropriation; this will reduce the incentive for large private farmers to invest in their land, pulling down the average productivity of the private farm sector in relation to the ejido sector.

99. There are no recent studies of the relative productivity of the two tenure categories: the available sources are based either on agricultural census data up to 1970 or pre-1970 case studies. (Appendix A explains why data from the 1981 Agricultural Census does not lend itself to productivity comparisons). To assess the findings of the available studies, it is necessary to understand the policy environment that prevailed before 1970.

100. In the immediate aftermath of the dynamic phase of the Mexican land reform (1934-40), Mexico experienced impressive agricultural growth. Many authors

(e.g. Flores,1959 & 1969) have argued that land reform, by ensuring more intensive cultivation of large tracts that were formerly idle, was the key factor in this growth. Between 1940 and 1960, Mexican agricultural output rose at an annual average rate of 4.6 percent (compared to 2.7 percent for all Latin America)(Eckstein et al,1978:36). Roughly half of this growth was attributable to an extension of the cultivated area, the other half to increased yields (Reyes Osorio et al,1974:112).

101. The nature of the land reform process helped to maximise the contribution that expropriated estateholders made to 1940–60 agricultural growth. "The policy of leaving owners with generous reserves guaranteed against further expropriation transformed, on a significant national scale, a class of owners of very large traditionalist latifundia, into a group suddenly reduced in their holdings but still able to muster substantial resources and recover their economic position by improvement in their farming methods. The shock of expropriation would surely provide a new incentive for them to attempt to do this; and the growth in output resulted in large measure from just this kind of innovation by larger landholders" (Eckstein et al,1978:39). In conclusion, "the landowners' reserves policy probably raised agricultural output in the longer run; while the creation of small ejido family farms increased food production and ejido incomes in the short run, but kept them at a very modest rate of growth thereafter" (Eckstein et al,1978:42).

102. An important factor tending to enhance the different growth trajectories of ejidos and private farms was the scale–bias that government policy imposed on the delivery of subsidized capital inputs: this bias favoured the large private farms and the collective ejidos, reflecting a government conviction that large units were intrinsically more efficient. Johnston and Kilby (1975) have referred to the dualistic or "bimodal" structure that government policy induced in Mexican agriculture: large

commercial farms (centred on the irrigation districts) generated rapid agricultural growth; these coexisted with a subsistence sector of low growth and increasing poverty, consisting of small farms in the ejido and private sectors (centred on the rain-fed agricultural regions).

103. Agricultural credit subsidies, public investment (notably in irrigation and roads) and "green revolution" technologies were primarily channeled toward larger enterprises (Hewitt de Alcántara,1978). In the 1940s and 1950s, the ejido sector received respectively only 21 percent and 22 percent of total agricultural credit (Mueller,1970:256-257); yet its share in total arable land was 44 percent in 1950 (Yates,1981a:154). In the same decades the total area of ejido land that received fertilizer was only half that in the private farm sector (Mueller,1970:258). However, small private farms were not much better off than ejidos.

104. To conclude, up until 1970 at least, private farms over five hectares remained more capitalized than the ejidos (both in terms of working capital and fixed capital stock) (Hewitt de Alcantára,1978). The large private farms and (to a lesser extent, the collective ejidos) contributed a disproportionately large share of farm production and agricultural output growth up to 1970 (Eckstein et al,1978:38).

(a) The census record. These trends would suggest that any study comparing the performance of ejidos and private farms would surely point to the superior productivity of the latter. However, the published works referring to the pre-1970 period reach varying conclusions. Comparisons between ejidos and private farms that are based on the census data have focussed on differences in (a) crop yields, (b) labour productivity, (c) the relationship between purchased capital inputs and output value and (d) the relationship between an aggregate measure of land,

labour and capital, and output value. On each of these counts there is not complete agreement between the various studies concerning the productivity of the two tenure sectors.

105. Which is the most legitimate (or reliable) indicator of relative productivity? Yates (1981b:748-750) argues that, since the relative scarcity of land is now probably the same for both the ejido and the private farm sectors, it is legitimate to focus on land productivity when comparing the performance of the two sectors. Moreover, the most recent evidence suggests that, comparing same-size holdings, there is no significant variation between tenure categories in average land quality (Tables 9 & 10). However, it has been suggested that, in the pre-1970 period, institutional biasses tended to starve the individual ejidos of good-quality (irrigated) land (Reyes Osorio et al,1974; Hewitt de Alcántara,1978); this needs to be borne in mind when assessing the pre-1970 evidence on relative productivity.

106. Dovring (1970) found that the rates of growth of crop output were about the same for both sectors in the 1950s; referring to the same decade, Mueller (1970) made a similar finding, concluding that, in terms of output growth per unit of total measured inputs, ejidos performed at least as well as private farms.

107. There is less agreement about relative crop yields. Dovring (1970) concludes that, in 1960, there was no significant difference in crop yields between ejidos, on the one hand, and private farms over five hectares on the other. Also referring to the 1960 census, Eckstein and his associates find that, in terms of physical crop yields, ejidos are less productive than either small or large private farms. However, in terms of the per hectare value of crop output, ejidos are superior to small private farms and inferior to large private farms, reflecting the proportion of high revenue crops in the crop mix (1978:Appendix C,p.1).

108. Analysing the same 1960 census data, Reyes Osorio and associates (1974) derive opposite conclusions: an examination of yield levels by state, controlling for differences in the access to irrigation between tenure sector, reveals that, except in the case of wheat, ejidos have higher land productivity than large private farms. A study by Pillet (1973) found that, according to the 1960 census, crop yields were roughly the same in both tenure sectors; moreover, the increase in yields between the 1950 and 1960 census was greater for the ejidos than for large private farms, in spite of the latter's higher consumption of purchased inputs.

109. Studies comparing the 1960 and 1970 censuses reach equally varied conclusions. Nguyen and Martínez (1979) find that, in the 1960s, the growth rate of output was considerably greater for the land reform sector than for the private sector; they attribute this, in large part, to the substantial transfer of land from the private to the ejido sector in the 1960s. These authors find that ejidos had lower crop yields than private farms in 1960 and 1970. However, both average and marginal returns to expenditure on farm inputs were found to be considerably higher for ejidos than for private farms. Referring to the 1970 census data for the state of Puebla, Soberon-Ferrer (1986:165) reaches a different conclusion: he shows that small private farms obtained the highest average and marginal product from land, followed in descending order by large private farms and ejidos.

110. In terms of the efficiency of resource use, studies based on the census data up to 1970 tend to agree that small farms (ejido and private) are more efficient than large farms. Estimates of the relative efficiency of small private farms and individual ejidos vary considerably between studies. Eckstein and others (1978:Appendix C,p.1), Weckstein (1970:405) and Van Ginneken (1980:189-192) find

that, in terms of output per unit of purchased input, the small private farms were more efficient than the ejidos. On the other hand, Nguyen and Martínez (1979:631) find that, according to the 1960 and 1970 data, the ejido sector obtained a higher crop output value per unit of capital expenditure than private farms; however, they compare ejidos with private farms over five hectares which is arguably not the most rigorous test of relative efficiency.

111. Efficiency estimates place the ejido in more favourable light if the yardstick is restricted to purchased capital inputs. If relative efficiency is measured in terms of total factor productivity (land and labour as well as capital), the ejido performed less well than the small private farm in the pre-1970 period. In particular, relative efficiency estimates are highly sensitive to the value imputed to unremunerated family labour: if these inputs are assigned a positive opportunity cost (a reasonable assumption in the light of Gregory's (1986) study on the Mexican labour market), then ejidos emerge as much less efficient users of resources (Nguyen & Martínez,1979:631; Weckstein,1970:405). Eckstein and associates conclude "when total factor productivities are compared, the small private farms come out ahead in all cases. The relative position of ejidos and large private farms varies with the inclusion or exclusion of owners' family labour as an input cost" (1978:115).

112. These conclusions are based on the assumption that the census data are reliable and convey an accurate picture of trends in the Mexican countryside. Yates (1981a;1981b) provides an interesting discussion of the problems associated with the census data. He indicates one respect in which the census data on outputs and inputs are likely to be inaccurate: "The private farmers have a strong motive (income tax) for exaggerated reporting of expenses, just as they have for under-reporting receipts, whereas ejidatarios, enjoying statutory exemption from

income tax, have no such motive. Also, in irrigation districts, inputs on land leased from ejidatarios are recorded as incurred by private farmers while the outputs, as we have seen, are credited to the ejidatarios" (Yates,1981b:747).

113. These points are not entirely convincing. First, independently of the tax-evasion issue, ejidatarios may well be as evasive as private farmers in answering questions about their income, put to them by persons clearly associated with the government: in the case of rental or sharecrop deals between ejidatarios, both parties may choose to understate the output from land involved in these deals (because the deals are illegal), leading to an understatement of total ejido output; the evidence (e.g. Mummert,1987) suggests that deals between ejidatarios may well be as widespread as deals between ejidatarios and private farmers.

114. Second, in cases where ejidatarios rent-out their land to private farmers, is it always true that "outputs...are credited to ejidatarios"?; Yates reasoning may be neat but reality is often more messy. However, there is one particularly significant point that may be derived from his discussion: in the context of widespread clandestine leasing of ejido parcels (coupled with sharecropping), the formal (de jure) definition of the size of each tenure sector bears little relation to the de facto control over resources exercised by ejidatarios and private farmers. In other words, apart from being outdated (failing to shed any light on trends since 1970), the census data provide no firm basis for reaching conclusions about the relative efficiency of ejidos and private farms.

(b) Case study evidence. The Laguna cotton-producing region of Coahuila state was the site of many pre-1970 case studies. Owing to the relatively generous resource endowment of collective ejidos in this zone, it provided a "best-case scenario" for evaluating the economic efficiency of this sector. Since the Mexican

government sought to promote cotton production on the collective ejidos, in La Laguna ejidatarios enjoyed almost as much access to credit as private farmers (Eckstein et al,1978:61). Many of these studies were conducted under the auspices of the Centro de Investigaciones Agrarias, a government dependency with an implicit brief to defend the land reform (Reyes Osorio et al,1974; Eckstein,1966).

115. A survey conducted in 1967 (Eckstein et al,1978:60-64) sought to distinguish the effects of different forms of land tenure and farm scale on various measures of productivity, using a sample of 208, consisting of small and large private farmers, individual ejido farmers and collective ejido farmers. The collective ejidos were divided into three groups according to the Ejido Bank's evaluation of their creditworthiness: "good" (15 percent of all collective ejidos), "regular" (70 percent) and "bad" (15 percent). Cotton yields per hectare were found to be highest on large private farms, followed in descending order by "good" ejidos, small private farms, individual ejidos, "regular" ejidos and "bad" ejidos (Table 19).

116. The measurements of gross productivity (value of output per unit of input expenditure) present a complex picture. The "good" ejidos rank the highest in terms of land and total factor productivity; the large private farms rank highest in terms of labour productivity; and the individual ejidos occupy first place in terms of capital productivity. The least creditworthy collective ejidos (the groups "regular" and "bad") have the poorest overall record. It is hard to draw any firm conclusion from these data because they do not control very carefully for variations in farm scale; this is a significant ommission because in Mexico there is some evidence that delivery of subsidized capital inputs has been biassed in favour of large farms (Cornia,1985).

117. However, Eckstein made a further study of ejido efficiency, this time controlling rigorously for scale (Eckstein et al,1978; Table 20 in this report). He surveyed 313 relatively large, irrigated farms in nine regions of Mexico, ordered by enterprise size: size is defined in terms of the gross value of output, rather than the area owned or controlled. To begin with, the productivity of all factors increases in step with the scale of the enterprise, an interesting finding because it runs counter to much of the empirical evidence about the efficiency attributes of small-scale agriculture in the developing nations (Berry & Cline,1979); Mexico's distinctiveness in this respect has been remarked upon by others (Cornia,1985; Johnston,1983:230-231).

118. Second, within each of the scale categories, comparing output value with input value, the ejido performs better than the private farm: the gap is greatest in the case of capital productivity (confirming interpretations based on the census data) and total factor productivity; the superiority of the ejido sector is less marked in the areas of land and labour productivity. These results are very important because they demonstrate that, in irrigated regions, enterprise scale overshadows tenure category as the determining factor in economic efficiency.

119. The picture that emerges from these data "seems to be strongly contrary to trends in the rain-fed areas, where ejidos show lower efficiency than private farmers of similar size" (Eckstein et al,1978:83-85). The tentative explanation offered is that, in the irrigation districts, ejidos had equivalent access to credit and inputs whereas in rainfed areas they had little access to those resources; Johnston (1983:237) concurs in this view. Throughout the period 1940-70 governments considered large, irrigated farms to be the most appropriate vehicle for rapid agricultural growth (Wionczek,1982); small producers in the rainfed regions were generally starved of resources and, given the specific constraints

on credit access confronting the ejidos, ejidatarios probably fared marginally worse than small private farmers.

(c) Estimating post-1970 trends. By the early 1970s, agricultural growth had slowed to the point where it was inferior to the rate of growth of the population; food imports began to rise sharply (Heath,1988; Yúnez Naude,1988). Simultaneously, there was an outbreak of widespread rural unrest. The Mexican government responded to these developments by increasing the flow of subsidized state credit to the rain-fed regions, introducing a marketing-subsidies programme for the ejidos (PACE) and placing more emphasis on small-scale irrigation schemes (many of these located on the previously-neglected altiplano of central Mexico). Data on regional shares of national crop output value suggest that, by the mid-1980s, the central and southern regions (where most ejidos are concentrated) were making a much larger contribution than they had done in the early 1960s: between 1949-51 and 1960-62 the Centre's share in crop revenue fell from 30 percent to 25 percent; however, between 1960-62 and 1983, the Centre's share rose from 25 percent to 35 percent (Venezian & Gamble,1967; INEGI,1985).

120. State subsidies to tractor production led to a significant growth in tractor use after 1970; one study indicates that the adoption rate was higher for the ejido sector than for private farms (SPP-UNIDO,1986). While there are no data in the 1981 Agricultural Census on the number of tractors by tenure sector it is possible to infer the importance of tractor use from the proportion of the cattle herd employed as work animals (for ploughing and carting). In 1970, 12 percent of cattle in ejidos were used as work animals, compared to 4 percent in the private sector; by 1981, the proportions had declined respectively to 5 percent and 2 percent; moreover, on farms up to five hectares, the proportion was the same in

1981 (9 percent)(Table 16). Therefore, there is good reason to suppose that labour productivity on individual ejidos has now caught up with that of small private farms (altering the pre-1970 picture when, according to the census data, ejidos showed relatively low labour productivity).

121. Evidence is also available to demonstrate that individual ejidos now have better access to irrigation than they did before 1970: according to the 1981 census, on farms up to five hectares, 18 percent of ejido cropland is irrigated, compared to 13 percent in the case of private farms (Table 11). This suggests that individual ejidos are no longer likely to have lower crop yields than small private farms. In the case of maize (the most widely-grown crop), the proportion of the sown area under irrigation was roughly the same for each tenure sector in 1981. Also, in terms of the proportion of the sown area actually harvested (a rough guide to the extent of crop loss), ejido farms fared somewhat better than private farms in 1981 (Table 14). Other land use data from the 1981 census also suggest that individual ejido farms are now unlikely to be less productive than comparably-sized private farms: the former show a higher proportion of land in agricultural use; and the ratio of fallow land to cropland is the same for both tenure categories on farms up to five hectares (Table 9). This however may be due to the higher proportion of irrigated land within the ejido sector.

X. CONCLUSIONS AND POLICY RECOMMENDATIONS

122. In contemplating changes to Mexico's land tenure regime it is important to consider political as well as economic constraints: specifically, it may be unwise to seek to undo the land reform if the economic payoff from such an initiative is likely to be small. Since the mid-1970s, land reform has not been a significant item

on the Mexican government's policy agenda. However, within the government and outside it, the ejido continues to occupy price of place as a symbol of the Mexican Revolution and of the government's commitment to the rural poor. Attempts by the past two administrations to facilitate private sector investment in the ejido triggered widespread expressions of dissent. If the present government sought to make major alterations to Mexico's land reform institutions it might encounter significant resistance; if such resistance were to place in jeopardy the present administration's programme of economic liberalization, there might well be net losses from the attempt to undo the land reform.

123. More importantly, the evidence reviewed here suggests that there is no major difference in the productivity of the ejido and private farm sectors. The constraints on agricultural growth in Mexico have been more a function of price policy and the nature of subsidy-allocation, constraints that are felt more or less equally by small farmers in the ejido and private sectors. Rather than designing programmes specifically for the ejido sector the major emphasis should remain on improving incentives for farmers generally; in particular, it is important to ensure that the government's price and subsidy policy does not discriminate against the rural sector.

124. While the institutional differences between individual ejidos and small private farms appear not to generate major differences in indicators related to productivity, it is likely that ejidatarios face more constraints on productivity growth than private farmers. Without abolishing the ejido it is possible to substantially deregulate the sector: this entails making piecemeal improvements to the existing institutional structure of land reform. Specifically,

1. The law about the size of ejido parcels has proved unenforceable and should be abandoned; granting of titles to ejidatarios should not be contingent on the size of their parcel.
2. The existing drive to provide ejidatarios with titles to their parcels should be accelerated, in order to provide them with maximum security of tenure;
3. For private farms, holding size ceilings should only vary according to land quality, not according to the crop grown; restrictions on the maximimum size of private cattle ranches should be clarified; the proportion of these ranches that may be planted to crops should be made clear; if the land reform law is altered in this respect there will be less basis for arbitrary expropriation, favouring higher output growth and on-farm investment in the private sector.
4. Ejidatarios should be free to enter into leasing or sharecrop arrangements with other ejidatarios or with private farmers, without facing the risk of having their parcels confiscated; renting and sharecropping may also create employment within the ejido (since land-deficit families that do not migrate are able to work the land of those who have migrated); although, in many cases, renting and sharecropping increase wealth concentration, they may in some cases have positive distributional effects; in any event, they ensure efficient exploitation of ejido land by placing it in the hands of those with the means and the vocation to work it.
5. Ejidatarios should be allowed to sell their parcels back to the ejido: as long as sales do not involve outsiders the integrity of the ejido will be preserved; the sale price of the parcel should compensate

the ejidatario for improvements he has made to it; recommendations (4) and (5) are conducive to the formation of larger and more efficient units of enterprise within the ejido sector, counteracting the negative effects of parcel fragmentation.

6. Restrictions on the use and management of communal ejido lands should be ammended to allow leasing, private investment and joint ventures; government will need to find an appropriate way of enforcing standards concerning timber cutting, replanting rates and pastoral carrying capacity, in order to avoid environmental degradation: it is essential that the external costs entailed by exploitation of communal lands be "internalized" (i.e. borne by individual ejidatarios and private investors), in order to promote ecologically-responsible forestry and stock-rearing activities.

7. Ejidatarios should be permitted to make individual or voluntary group credit applications to Banrural; the evaluation of loan applications should be based on creditworthiness criteria;

8. The burden of default should be borne only by the individuals or groups responsible for defaults, not by the whole ejido;

9. All Banrural credit should be provided in cash with full responsibility for input purchase and delivery being borne by the farmer; farmers should be free to plant whatever crops they wish with the credit they receive.

GRAPH 1.

MAIZE PRICE AND WAGE TRENDS, 1940–86.

Average rural price/Minimum daily wage.

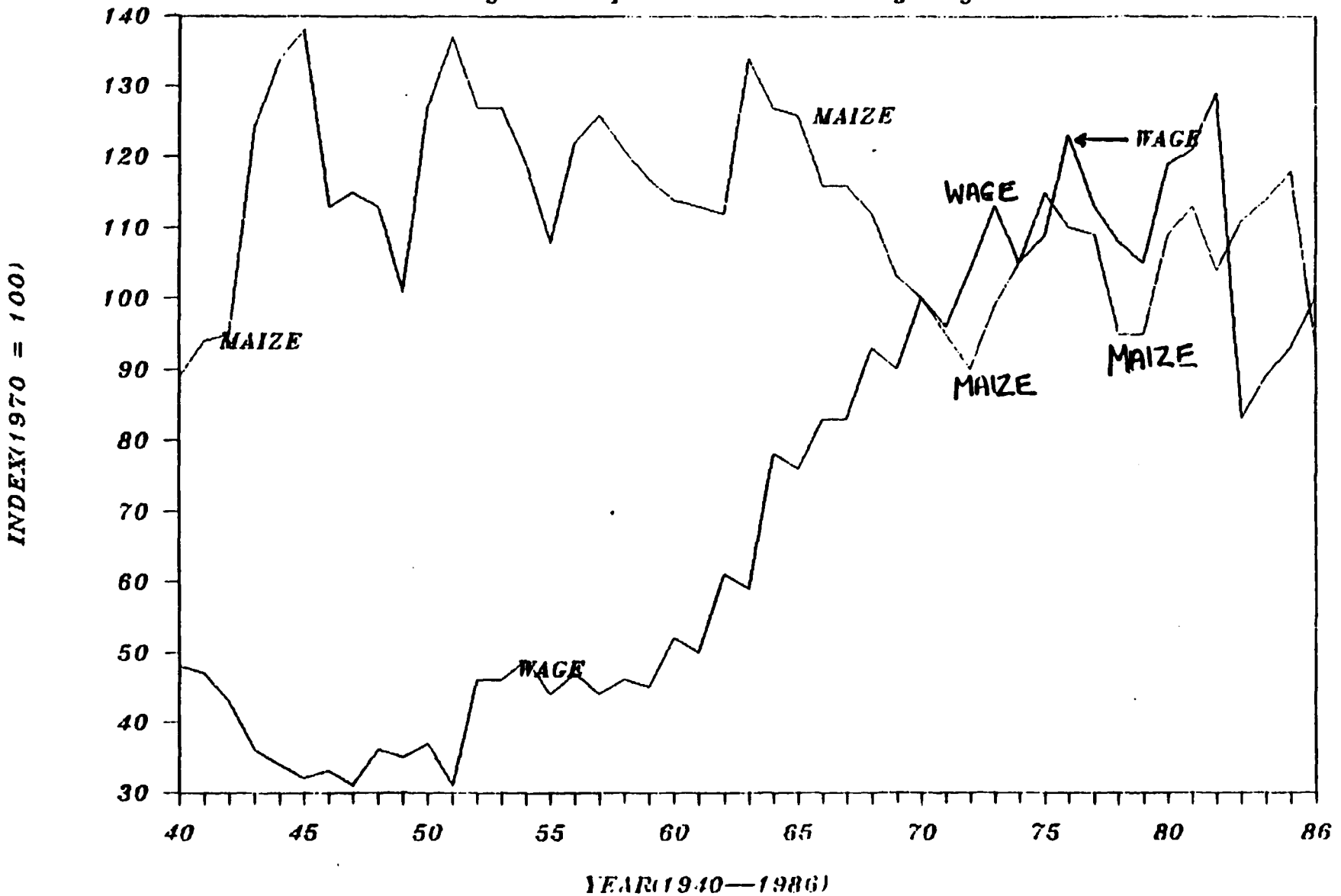

TABLE 1: VARIATION IN THE INTENSITY OF LAND REFORM BY PRESIDENTIAL TERM, 1900–1988.

Period	Land redistributed (Hectares)	Percent of total area redistributed by 1988
1900–1914	194,495	0.2
1915–1934	11,543,833	11.0
1935–1940	18,786.131	17.9
1941–1946	7,277.697	6.9
1947–1952	4,590,381	4.4
1953–1958	6,056,773	5.8
1959–1964	8,870,430	8.4
1965–1970	24,738,199	23.5
1971–1976	12,773,888	12.1
1977–1982	6,097,005	5.8
1983–1988	4,167,588	4.0
TOTAL	105,167,588	4.0

SOURCE: 1900–1982: SPP–INEGI, Estadísticos Históricos de México, Tomo I, Mexico D.F., SPP, 1986.1983–1988: Sexto Informe Presidencial, 1988 (Anexo Estadístico), Mexico D.F., SPP, 1988.

TABLE 2: Proportion of Farms in the Ejido Sector by State and Region, 1981*

States and Regions	Ejido/Total %
All of Mexico	63.8
North Pacific	77.0
Sonora	47.0
Sinaloa	81.0
California Norte	69.0
Baja California Sur	23.9
Nayarit	92.8
North	68.9
Chihuahua	65.3
Coahuila	78.1
Nuevo Leon	35.7
Tamaulipas	65.0
San Luis Potosi	80.6
Durango	83.0
Zacatecas	62.8
Center	56.8
Jalisco	56.2
Aguascalientes	72.2
Guanajuato	65.0
Queretaro	69.5
Hidalgo	61.2
Talaxcala	8.6
Morelos	80.0
Puebla	48.0
Michoacan	72.0
Mexico City	46.3
Mexico	48.6
South Pacific	66.9
Colima	82.4
Guerrero	74.6
Oaxaca	58.4
Chiapas	73.1
Gulf	64.5
Veracruz	66.8
Tabasco	42.7
Campeche	81.9
Yucatan	72.3
Quintana Roo	87.9

Source: Agricultural Census, 1981.
*Refers to number of enterprises, not area occupied.

TABLE 3: Extent of Land Reform by Region, 1985

	Land Distributed (hectares)	Total Area (hectares)	(1)/(2) (%)
All Mexico	102,876,920	196,718,300	52.3
North Pacific	18,430,252	41,443,700	44.5
North	38,131,949	80,057,800	47.6
South Pacific	12,344,546	23,850,000	51.8
Centre	13,041,635	27,466,900	47.5
Gulf	12,359,717	23,899.900	51.7

Note: See Table 2 for list of states comprising each region.

Source: INEGI, Estadisticos Hisoricos de Mexico, Tomo I, Mexico D.F., SPP, 1986; Statistical Abstract of Latin America. Vol. 20. Table 301.

TABLE 4: Distribution of Farm Enterprises by Tenure Category, 1981.

(a) Number of farms

	Private	Ejido	Mixed	Total
All farms	1,003,374	2,099,038	189,668	3,292,100
Farms of 5 hectares or less	565,846	1,220,058	120,824	1,906,728

(b) Percent of farms by tenure category

	Private	Ejido	Mixed	Total
All farms	30.5	63.8	5.7	100.0
Farms of 5 hectares or less	29.7	64.0	6.3	100.0

(c) Percent of farms in each tenure category that occupy five hectares or less

Private	Ejido	Mixed	Total
56.4	58.1	63.7	57.9

SOURCE: VI Censos Agrícola-Ganadero y Ejidal,1981, (Cuadro 01) INEGI-SPP: Mexico D.F., 1988.

TABLE 5: Proportion of Land not in Production by Tenure Category, 1981.

	Private '000 has	%	Ejido '000 has	%	Mixed '000 has	%
ALL ENTERPRISES						
In Production	**54,199**	**73.4**	**12,975**	**85.2**	**2,115**	**73.1**
Not in Production	19,662	26.6	2,260	14.8	778	26.9
Total	73,861	100.0	15,235	100.0	2,893	100.0
ENTERPRISES UP TO FIVE HECTARES						
In Production	919	93.6	2,778	94.1	259	98.1
Not in Production	63	6.4	174	5.9	5	1.9
Total	982	100.0	2,952	100.0	264	100.0

Note "Not in production" means that the land was not put to agricultural or silvicultural use in the period April-September 1981; this category includes enterprises that have never used the land for these purposes.

SOURCE: Same as Table 4

TABLE 6: Estimates of Area of the Ejido Sector

	DATE / SOURCE				
	1970 Census	1970 SRA	1981 Census	1982 SRA	1985 SRA
'000 Hectares					
(a) CROPLAND	12,753	12,511	10,012	14,230	14,380
- rainfed	10,993	10,831	8,339	12,360	12,471
- irrigated	1,760	1,680	1,673	1,870	1,909
(b) TOTAL AREA					
(1)	69,724	82,148	na	101,319	102,877
(2)	na	na	15,235	na	na

Key to (b) (1) = Whole ejido sector; (2) = Sum of parcels in individual ejidos; individual ejidos; na = Not available.

SRA = Secretaria de Reforma Agraria

Note:

The census data for "Total area" are not comparable owing to the different way in which ejido land was measured in 1970 and 1981; the degree of comparability is greater in the case of 'cropland' (see Appendix A). "Total area" covers cropland, forest, natural grazing and unproductive land. "Cropland" includes sown pasture.

SOURCE: Agricultural Census, 1970 & 1981; INEGI, 1986.

TABLE 7: Number of Farm Enterprises by Tenure Category 1981

Holding size (has)	Private '000 farms	Private %	Ejido '000 farms	Ejido %	Mixed '000 farms	Mixed %
0-2	398	39.7	647	30.8	66	34.9
3-5	168	16.7	573	27.3	55	29.1
6-20	213	21.2	809	38.5	55	29.1
21-50	101	10.1	58	2.8	8	4.2
51-100	54	5.4	4	0.2	2	1.1
100-1000	58	5.8	9	0.4	3	1.6
1001-2500	6	0.6	*	*	*	*
Over 2500	5	0.5	-	-	*	*
Total	1003	100.0	2100	100.0	189	100.0

SOURCE: Same as Table 1.

TABLE 8: States Where More 25% of Farms were "not in Production" in 1981.

State	Share of land in holdings corresponding to farms not in production (%)	
	Private	Ejido
Baja California	94.7	47.1
Baja California Sur	82.9	7.7
Nayarit	na	33.9
Sinaloa	31.2	na
Sonora	42.7	54.9
Coahuila	38.3	28.9
Nuevo Leon	na	26.3
Colima	56.2	na
Guerrero	32.9	36.9
Oaxaca	30.7	na
Campeche	78.8	na
Quintana Roo	97.3	72.8
Yucatan	29.0	na

na=Share of farms not in production less than 25%.

SOURCE: Same as Table 4.

TABLE 9: Land use by Tenure Category, 1981.

	Private	Ejido	Mixed
'000 hectares			
TOTAL	73,862	15,235	2,892
Cultivated	8,735	8,279	1,386
Fallow	1,675	1,733	197
Natural Pasture	27,427	2,154	560
Forest	26,426	2,588	611
Other	9,599	481	138
%			
TOTAL	100.00	100.0	100.00
Cultivated	11.8	54.3	47.9
Fallow	2.3	11.4	6.8
Natural Pasture	37.1	14.1	19.4
Forest	35.8	17.0	21.1
Other	13.0	3.2	4.8
ENTERPRISES UP TO FIVE HECTARES			
'000 hectares			
TOTAL	982	2,952	265
Cultivated	699	2,294	221
Fallow	69	259	16
Natural Pasture	93	189	12
Forest	80	172	11
Other	41	38	5
%			
TOTAL	100.0	100.0	100.0
Cultivated	71.2	77.7	83.4
Fallow	7.0	8.8	6.0
Natural Pasture	9.5	6.4	4.5
Forest	8.1	5.8	4.2
Other	4.2	1.3	1.9

Note: "Ejido" refers to the aggregate of individual parcels, not to collective ejidos or communally-worked areas of parcellized ejidos; "Cultivated" includes planted pasture; "Other" refers primarily to land that is not being farmed and/or is inappropriate for agriculture.

SOURCE: Same as Table 4.

TABLE 10: Number of Cattle by Tenure Category
1970 & 1981

	Private	Ejido	Mixed
'000 Head			
ALL FARMS			
Total Herd			
1970	13,003	4,734	na
1981	14,067	7,613	823
Purebred Cattle			
1970	1,995	160	na
1981	3,163	620	97
FARMS UP TO 5 HECTARES			
Total Herd			
1970	2,633	na	na
1981	855	2,378	187
Purebred Cattle			
1970	124	na	na
1981	88	189	16

SOURCE: Agricultural Census, 1970 & 1981.

TABLE 11: Proportion of Cropland that is Irrigated by Tenure Category

	Private		Ejido		Mixed	
	'000 has	%	'000 has	%	'000 has	%
ALL ENTERPRISES						
Irrigated	1,823	16.6	1,878	17.7	219	13.6
Unirrigated	9,133	83.4	8,729	82.3	1,393	86.4
Total	10,956	100.0	10,607	100.0	1,612	100.0
ENTERPRISES UP TO FIVE HECTARES						
Irrigated	104	13.1	464	17.7	38	15.8
Unirrigated	687	86.9	2,152	82.3	202	84.2
Total	791	100.0	2616	100.0	240	100.0

SOURCE: Same as Table 4.

TABLE 12: Proportion of Cropland under Irrigation by Region and Tenure Category, 1970 & 1981

Percentages

	Ejido		Private	
	1970	1981	1970	1981
All Mexico	13.8	17.7	15.5	16.6
North Pacific	59.4	45.5	66.8	59.7
North	20.1	17.9	26.7	18.3
South Pacific	3.6	4.0	4.1	4.5
Centre	13.0	21.2	15.6	13.3
Gulf	1.7	2.5	1.1	2.3

Note: For list of states comprising each region see Table 2.

SOURCE: Agricultural Census, 1970 & 1981

TABLE 13: Main Crops Cultivated in Ejido and Private Sector, 1981.

	Private		Ejido	
Area Harvested* ('000 has.)	**5.010**	**(100.0)**	**7,203**	**(100.0)**
Maize	**2,456**	**(49.0)**	**4,274**	**(59.3)**
Beans	738	(14.7)	1,175	(16.3)
Sorghum	583	(11.6)	581	(8.1)
Wheat	341	(6.8)	271	(3.8)
Safflower	202	(4.0)	168	(2.3)
Soybean	172	(3.4)	166	(2.3)
Other**	518	(10.5)	568	(7.9)

* Main crops only (Sum of autumn-winter 1980-81 and spring-summer 1981 crop cycles)
** Sesame seed, cotton, rice, oats, barley, chickpea, chile pepper, tomato, tobacco.

SOURCE: Same as Table 4.

TABLE 14: Maize: Relation of Sown to Harvested Area

	Private	Ejido	Mixed
Maize: 1980–1981*			
(1) Sown area ('000 has)	2,933	4,813	721
(2) Harvested area ('000 has)	2,456	4,273	645
(3) Percent of (2) under irrigation	13.9	14.9	21.7
(4) (2)/(1) (%)	83.7	88.8	89.5

* Refers to the sum of two crop cycles: Autumn–Winter (1980–81) and Spring–Summer (1981)

SOURCE: Same as Table 4.

TABLE 15: Number of Farm Enterprises engaged in Cooperative forms of Production

	Private		Ejido		Mixed	
	'000 farms	%	'000 farms	%	'000 farms	%
All enterprises	921	100.0	1958	100.0	184	100.0
Enterprises working cooperatively						
- within kin group	9	1.0	11	0.6	2	1.1
- between kin group	2	0.2	114	5.8	9	4.9

Note "Enterprises working cooperatively" does not include collective ejidos: it refers to all forms of work association between different households, both within the same kin group and between different families, where work is not remunerated by payment of a wage.

SOURCE: Same as Table 4.

TABLE 16: Proportion of Cattle Herd used as Work Animals

	(1) All cattle ('000 head)	(2) Work animals ('000 head)	(3) (2)/(1) (%)
ALL FARMS			
Private			
1970	13,003	549	4.2
1981	14,067	287	2.0
Ejido			
1970	4,735	562	11.9
1981	7,613	406	5.3
FARMS UP TO 5 HECTARES			
Private			
1970	2,633	258	9.8
1981	855	82	9.6
Ejido			
1970	na	na	na
1981	2,378	222	9.3

SOURCE: Agricultural Census, 1970 & 1981.

TABLE 17: Trends in the Volume of Agricultural Credit, 1983-88

Millions of 1980 Pesos	(1) BANRURAL	(2) BANRURAL Ejidatarios	(3) FIRA-SNC	(4) TOTAL
1983	42,298	30,020	67,342	109,640
1984	49,489	36.262	77.411	126.900
1985	53,831	40,018	94,616	148,447
1986	50,423	37,913	69,783	120,206
1987	42,045	30,274	49,213	91,258
1988	62,760	46,483	75,352	138,112

	Share of Banrural credit in total Agricultural credit (1)/(4) (%)	Share of ejidatarios in all Banrural credit (2)/(1)(%)	Share of Banrural credit to ejidatarios in total agricultural credit (2)/(4)(%)
1983	38.6	71.0	27.4
1984	33.4	73.3	24.5
1985	36.3	74.3	27.0
1986	41.9	75.2	31.5
1987	46.1	72.0	33.2
1988	45.4	74.1	33.7

SOURCE: Banrural, Informe de Autoevaluacion Sexenal, 1982-1988, Mexico D.F., 1989.

TABLE 18: Agricultural Credit Trends - 1980-88

BANRURAL & FIRA: Annual Lending and Portfolio
(In billions of 1988 MexS)

BANRURAL	1980	1981	1982	1983	1984	1985	1986	1987	1988
Balances at year-end 1/	5,629	6,641	4,441	3,553	3,922	4,380	3,329	2,774	4,035
I. Working Capital Loans	2,806	3,416	2,209	1,850	2,282	2,847	2,149	1,988	2,996
II. Investment Loans	2,824	3,226	2,233	1,702	1,641	1,533	1,180	786	1,039
LOANS GRANTED DURING THE YEAR 2/	6,337	5,995	4,802	3,805	4,314	4,093	4.075	3,710	3,943
I. Working Capital Loans	4,050	4,843	3,004	3,061	3,535	4,023	3,499	3,270	3,422
II. Investment Loans	1,287	1,352	998	744	779	070	575	434	522
FIRA									
Balances at year-end 1/	3,567	3,516	2,710	2,587	2,983	3,252	2,134	1,885	2,689
I. Working Capital Loans	1,766	1,975	1,811	1,729	2,055	2,113	1,524	1,262	1,732
II. Investment Loans	1,881	1,641	1,100	857	928	1,139	010	632	958
NEW DISCOUNTS DURING THE YEAR 2/	3,610	3,579	3,454	2,952	3,274	3,700	2,686	2,862	2,689
I. Working Capital Loans	1,727	2,010	2,052	1,973	2,255	2,407	1,918	1,762	1,732
II. Investment Loans	1,883	1,569	1,401	978	2,019	1,208	709	890	958
BANRURAL & FIRA									
Balances at Year-end	9,196	10,157	7,151	6,139	6,905	7,632	5,403	4,859	8,724
I. Working Capital Loans	4,512	5,390	3,819	3,580	4,336	4,960	3,873	3,240	4,728
II. Investment Loans	4,885	4,767	3,332	2,580	2,589	2.872	1,790	1,419	1,995
NEW LOANS/DISCOUNTS DURING THE YEAR	8,947	9,574	8,250	8,757	7,588	8,398	6,761	6,362	6,632
I. Working Capital Loans	5,777	6,853	5,857	5,035	6,790	6,430	6,418	6,038	5,164
II. Investment Loans	3,170	2,920	2,399	1,722	1,708	1,969	1,343	1,324	1,478

1/ Portfolio balances were inflated according to the end-of-year CPI.

TABLE 19: Comparing the Efficiency of Ejidos and Private Farms: (i) A Survey of La Laguna, 1967.

1967 Pesos	Private farms		Individual Ejidatarios	Collective ejidos		
	Large	Small		Good	Average	Bad
Gross product per hectare	7,804	7,977	4,620	8.540	5.100	3,450
Gross product per unit of capital	0.81	1.31	2.51	1.03	0.80	0.95
Gross product per manday	129	47	43	58	48	31
Total factor productivity	1.15	1.29	1.24	1.35	0.90	0.65

NOTES:

(1) N=208 farms; (2) 'Large farms' refers to those over ten hectares; 'small farms' have under ten hectares; (3) 'Good', 'average', 'bad' refers to the Ejido Bank's assessment of the creditworthiness of the collective ejidos in the sample; (4) Figures for private farms and individual ejidatarios refer to individual farm operations; figures for the collective ejidos refer to values for the whole ejido divided by the number of ejidatarios; (5) 'Gross product' refers to the value of all farm production in 1967: crops, livestock, forestry; includes changes in inventory; (6) 'Capital' refers to the value of livestock, equipment and plantations, excluding land, but including half the value of purchased inputs (land and equipment rent, hired labour, irrigation water, fertilizer, pesticide, interest on loans) as an estimate of working capital; (7) 'Mandays' excludes hired labour; (8) 'Total factor productivity' is gross product divided by purchased inputs plus capital plus an imputed cost for owners' family labour.

SOURCE: Eckstein et al (1978), p. 64.

TABLE 20: Comparison of average productivity and related values for Private and Ejido farms of three sizes in a sample from irrigated lands in Mexico, 1967

	Small Farms a/		Medium Farms a/		Large Farms a/	
	Private	Ejido	Private	Ejido	Private	Ejido
No. of Farm Units	41	122	34	43	78	6
Land Productivity						
Cultivated land (hectares)	7.3	6.0	19.0	13.5	128.8	47.5
Product per hectare (pesos)	2400	2500	3200	4800	7734	8069
Gross income b/ hectare (pesos)	573	1257	610	1462	2865	3613
Capital Productivity						
Capital per farm (1000 pesos)	22	12	111	27	1040	160
Capital per hectare (1000 pesos)	3.4	2.1	5.5	2.4	8.3	3.7
Product/capital	.56	.93	.47	1.24	.72	1.16
Labor Productivity						
Man-days per farm c/	666	468	1284	989	8159	3021
Man-days per hectare c/	99	82	70	87	65	69
Product per man-day (pesos) c/	24	30	46	55	119	116
Total Factor Productivity						
Product per farm (1000 pesos)	16	14	61	54	969	352
Gross income b/ per farm (1000 pesos)	4.2	7.5	11.6	19.7	369	172
Product per total inputs d/	.69	.98	.80	1.10	1.17	1.44
Product per total inputs e/	.95	1.40	.82	1.27	1.18	1.51
Value-added per total inputs e/	.62	1.05	.46	.80	.69	1.06

a/ Size groups based on gross value of output in pesos: small = 5,000 - 25,000; medium = 25,000 - 100,000; large 100,000 and over.
b/ Value of product minus purchased inputs.
c/ Hired labor plus labor of owner/ejidatarios.
d/ Inputs include those purchased plus inputed values for land and owner/ejidatario labor.
e/ Same as d., but excluding imputed value of owner/ejidatario labor from the denominator.

APPENDIX A

A NOTE ON THE DIFFICULTY OF INTERPRETING THE RESULTS OF THE 1981 AGRICULTURAL CENSUS.

The 1981 Agricultural Census is the most up-to-date source of nationwide data which explicitly disaggregates by tenure category. However, compared to the 1970 Census (which has been extensively analysed in the secondary literature) the 1981 Census provides a less than adequatereferent for comparing private and ejido sectors. There are also a number of reasons why it is difficult to meaningfully compare the 1970 and 1981 censuses.

First, the 1981 data is highly schematic: the computerized data base containing the census returns was destroyed in the 1985 Mexico City earthquake and it was only possible to derive estimates based on a random sample of 10 percent of the original questionairres. The information contained in the one document published is much less complete than that of 1970: for example, there is no data on crop output making it impossible to compare yields between the private and ejido sector.

Second, the definition of holding sizes and land tenure categories is substantially different for 1970 and 1981. In 1970, private holdings are broken down by size into only two groups: properties of five hectares or less and properties larger than five hectares; in 1981, farms (ejido parcels as well as private holdings) are classified into eight holding-size strata.

More importantly, whereas in 1970 data on ejidos and comunidades agrarias took as their unit of reference the whole ejido, in 1981 the unit of reference is the individual parcel within the ejido or comunidad. This conceptual adjustment reflects the prevailing reality of the Mexican land reform sector where household enterprises essentially work the land on an individual basis, although nominally they form part of a community of producers. The 1981 adjustment facilitates comparison of household enterprises in the ejido and the private sector.

However, a major failing of this approach concerns the exclusion of collective ejidos and the communal areas of parcellized ejidos: it is therefore impossible to ascertain the total land base and resource endowment of the ejido sector and its proportional significance in relation to the private sector. This adjustment is reflected in the area covered by the census: a mere 91.9 million hectares in 1981 (roughly 47% of national territory), compared to 169 million hectares in 1960 and 139 million hectares in 1970.

According to the 1981 Census only 17 percent of the land in holdings corresponds to the ejido sector. Statistics compiled by the Agrarian Reform Ministry indicate that by the end of 1982 51 percent of the national territory had been turned over to the reform sector; this tallies with the 1970 Census results which indicated that just under half of the area surveyed was in ejidos or comunidades. In other words, roughly two-thirds of the ejido resource base is unaccounted for in the 1981 census.

A further difference between the 1970 and 1981 Censuses concerns the introduction, in 1981, of a new tenure category (Mixta) corresponding to those farms that are operated jointly by ejidatarios and private farmers. The inclusion of this category was undoubtedly influenced by the Ley de Fomento Agropecuario (1980) which gave legal sanction to the association of farm enterprises from the private and land reform sectors. Typically, ejidatarios contribute land (and possibly labour) while the private farmers provide working capital. It is not clear how, in legal terms, this arrangement differs from the straightforward renting-out of ejido land, a practice that is formally proscribed by the Agrarian Reform Law.

The renting-out of ejido land has been widespread in Mexico since the earliest days of the land reform. Because it is illegal the extent of this practice is almost certainly not fully reflected in the new tenure category, mixta. According to the 1981 Census only 6 percent of farm enterprises and 3 percent of the land surveyed is classified as mixta. It is safe to assume that the effective control and management of land in Mexico is concentrated in fewer hands than the Census data would suggest since large numbers of ejidatarios clandestinely hand over their land to other producers in exchange for a money rent, thus exercising no influence over the use to which that land is put.

BIBLIOGRAPHY

Adams D.W. & R.C. Vogel (1986) "Rural financial markets in low-income countries", World Development, April.

Arizpe, L. (1981) "Relay migration and the survival of the peasant household" in J. Balan (ed) Why People Move: Internal Migration and Development, Paris: UNESCO.

Bailey, J.J.(1981) "Agrarian reform in Mexico" Current History, Vol. 80, No. 469, November.

Banrural (1989) Credit data supplied to Graciela Lituma, Country Department II, World Bank.

Barkin, D. (1977) "Desarrollo regional y reorganización campesina: La Chontalpa como reflejo del gran problema agropecuario mexicano" Comercio Exterior, Vol. 27, No 12.

Bartra R. (1975) "Peasants and political power in Mexico" Latin American Perspectives, Vol. 2, No. 2.

Berry, R.A. & W.R. Cline (1979) Agrarian Structure and Productivity in Developing Countries, Baltimore: Johns Hopkins University Press.

Boruconsa (1982) Memoria: Programa de Apoyo a la Comercialización Rural, 1976-1982 Mexico City: Bodegas Rurales Conasupo, Gerencia de Programas Especiales.

Brannon, J. & E.N. Baklanoff (1984) "The political economy of agrarian reform in Yucatán, Mexico" World Development Vol. 12, Nos. 11-12.

Brannon, J. & E.N. Baklanoff (1987) Agrarian Reform & Public Enterprise in Mexico: The Political Economy of Yucatan's Henequen Industry. Tuscaloosa, Alabama: University of Alabama Press.

CIMMYT (1977) The Puebla Project: Seven Years of Experience (1969-73), Mexico City: CIMMYT.

Córdova, A. (1974) La política de masas del Cardenismo, Mexico City: Era.

Cornia, G.A. (1985) "Farm size, land yields and the agricultural production function: An analysis for 15 developing countries" World Development, Vol. 13, No 4.

Craig, A. (1983) The First Agraristas, Berkeley: University of California.

De Walt, B.R. (1979) Modernization in a Mexican Ejido: A Study in Economic Adaptation, Cambridge: Cambridge University Press.

Diaz-Cisneros, H. (1983) The Agrarian Reform and Rural Development in Mexico, (Development Paper No. 149) Cambridge, Massachusetts: Harvard Institute for International Development.

Dovring, F. (1970) "Land reform and productivity in Mexico," Land Economics, No. 3.

Eckstein, S. (1966) El ejido colectivo en Mexico. Mexico City: Fondo de Cultura Económica.

Eckstein, S. et al (1978) Land Reform in Latin America: Bolivia, Chile, Peru and Venezuela, World Bank Staff Working Papers, No. 275, Washington D.C.

Excélsior (Mexico City), Manuel Buendia column, Section A, p. 1, 19th & 20th March, 1984.

Finkler, K. (1978) "From sharecroppers to entrepreneurs: peasant household production strategies under the ejido System of Mexico" Economic Development and Cultural Change Vol 27, No. 1.

Flores, E. (1959) "The structure of land use changes in the economic development of Mexico," Land Economics. Vol. 25, May.

Flores, E. (1969) "From land reform to industrial revolution: the Mexican case" Developing Economies Vol. 7, No. 1, 1969.

Fox, J.A. (1986) The Political Dynamics of Reform: The Case of the Mexican Food System, Unpublished PhD Dissertation, Massachusetts Institute of Technology.

Friedrich, Paul (1970) Agrarian Revolt in a Mexican Village. Englewood Cliffs, NJ: Prentice-Hall.

Gómez Oliver, L. (1984) El Desarrollo Agropecuario de México: Pasado y Perspectivas: (Tomo 7) El Ingreso y su Distribución Mexico City: SARH/CEPAL.

Goodman, L.W. et al, (1985) Mexican Agriculture: Rural Crisis and Policy Response, Working Paper No. 168, Latin American Program, Wilson Center, Washington D.C.

Gregory, P. (1986) The Myth of Market Failure, Baltimore: Johns Hopkins University Press.

Hansen, R.D. (1971) The Politics of Mexican Development, Baltimore: Johns Hopkins University Press.

Heath, J.R. (1985) "Contradictions in current Mexican food policy" in G. Philip (ed) Politics in Mexico, London: Croom Helm.

Heath, J.R. (1987) "Constraints on peasant maize production: a case study from Michoacan" Mexican Studies, Summer.

Heath, J.R. (1988) "An overview of the Mexican agricultural crisis" in G. Philip (ed) The Mexican Economy, London: Routledge.

Hewitt de Alcántara, C. (1978) La modernización de la agricultura mexicana, 1940-1970 Mexico City: Siglo XXI.

Hewitt de Alcántara, C. (1980) "Land reform, peasant livelihood and power in rural Mexico" in D.A. Preston (ed) in D.A. Preston (ed) Environment, Society and Rural Change in Latin America, Chichester: John Wiley.

INEGI (1985) Anuario Estadístico de los Estados Unidos Mexicanos Mexico City: SPP.

INEGI (1986) Estadísticos Históricos de México Vol 1, Mexico City: SPP.

INEGI-SPP (1988) VI Censos Agrícola-Ganadero y Ejidal, 1981 Mexico City: SPP.

Johnston, B. (1983) "The design and redesign of strategies for agricultural development: Mexico's experience revisited" in C.W. Reynolds & C. Tello (eds) U.S.-Mexico Relations: Economic and Social Aspects, Stanford: Stanford University Press.

Johnston, B. & P. Kilby (1975) Agriculture and Structural Transformation New York: Oxford University Press.

Montañez, C. (1989) Interview with author, Secretaría Técnica, Banrural, Mexico City (August).

Mueller, M.W. (1970) "Changing patterns of agricultural output and productivity in the private and land reform sectors in Mexico, 1940-60" Economic Development and Cultural Change, Vol. 18, No. 2.

Mummert, G. (1987) "The transformation of the forms of social organization in a Mexican ejido (1924-81)" International Social Science Journal, Vol. 39, No. 4.

NACLA (1976) "Harvest of anger" Latin America & Empire Report Vol. 10, July-August.

Nguyen, D.T. and M.L. Martinez Saldivar (1979) "The effects of land reform on agricultural reform, employment and income distribution: a statistical study of Mexican states" The Economic Journal. Vol. 89 September.

Norton, R.D. (1987) "Policy choices in agricultural trade between Mexico and the United States" in B. Johnston et al (eds) U.S.-Mexico Relations: Agriculture and Rural Development Stanford: Stanford University Press.

Pillet, B. (1973) "Land tenure and agricultural productivity in Mexico" Unpublished ms, Food Research Institute, Stanford University, March.

Redclift, M.R. (1983) "Production programs for small farmers: Plan Puebla as myth and reality" Economic Development and Cultural Change. Vol. 30, No. 3.

Rello, F. (1987) State and Peasantry in Mexico: A Case Study of Rural Credit in La Laguna, Geneva: UNRISD.

Reyes Osorio, S. et al (1974) Estructura agraria y desarrollo agricola en Mexico. Mexico City: Fondo de Cultura Económica.

Roberts, K.D. (1982) "Agrarian structure and labor mobility in rural Mexico" Population and Development Review. Vol. 8, June.

Sanderson, S. (1984) Land Reform in Mexico: 1910-1980. Orlando: Academic Press.

Soberon-Ferrer, H. (1986) Land Reform and Economic Efficiency: The Case of Puebla, Mexico Unpublished PhD dissertation, Clemson University.

SPP-UNIDO, Bienes de capital e insumos para la agricultura mexicana, Mexico City: Nacional Financiera.

Stavenhagen, R. et al (1968) Neolatifundismo y explotación Mexico City: Nuestro Tiempo.

Stavenhagen, R. (1975) "Collective agriculture and capitalism in Mexico: a way out or a dead end?" Latin American Perspectives, No. 5, Summer.

Stringer, H. (1972) "Land, farmers and sugar cane in Morelos, Mexico" Land Economics Vol 48, No 3.

Suárez, B. (1982-83) "Las semillas, el estado y las transnacionales" Problemas del Desarrollo Vol 13, Nos. 51-52.

Van Ginneken, W. (1980) Socioeconomic Groups and Income Distribution in Mexico New York: St Martins.

Venezian, E. & L. Gamble (1967) "El desarrollo de la agricultura mexicana" Investigación Económica January-June.

Villa Issa, M. (1977) "El mercado de trabajo y la adopcion de tecnologia nueva de produccion agricola", Chapingo: Colegio de Posgraduados.

Warman, A. (1977) "El neolatifundismo mexicano: expansión y crisis de una forma de dominio" Comercio Exterior Vol. 25, No. 12.

Weckstein, R.S. (1970) "Evaluating Mexican land reform" Economic Development and Cultural Change Vol. 18, No. 3.

Wilkie, R. (1971) San Miguel: A Mexican Collective Ejido. Stanford: Stanford University Press.

Wionczek, M. (1982) "The roots of the Mexican agricultural crisis: water resource development policies (1920-1970)," Development and Change Vol. 13, No. 3.

Womack Jr., J. (1969) Zapata and the Mexican Revolution, New York: Knopf.

World Bank (1989) Mexico: Agricultural Sector Report, Latin America & Caribbean Region, World Bank, Washington D.C., January 24.

Yates, P.L. (1981a) Mexico's Agricultural Dilemma. Tucson: University of Arizona Press.

Yates, P.L. (1981b) "Mexican land reform, 1959-69: A comment" The Economic Journal Vol 91, September.

Yúnez Naude, A. (1988) La agricultura mexicana en crisis: Reflexiones teóricas y análisis empírico Mexico City: Fondo de Cultura Económica.

Zaragoza, J.L. & R.Macias (1980) El desarrollo agrario de Mexico y su marco juridico. Mexico City: Centro Nacional de Investigaciones Agrarias.